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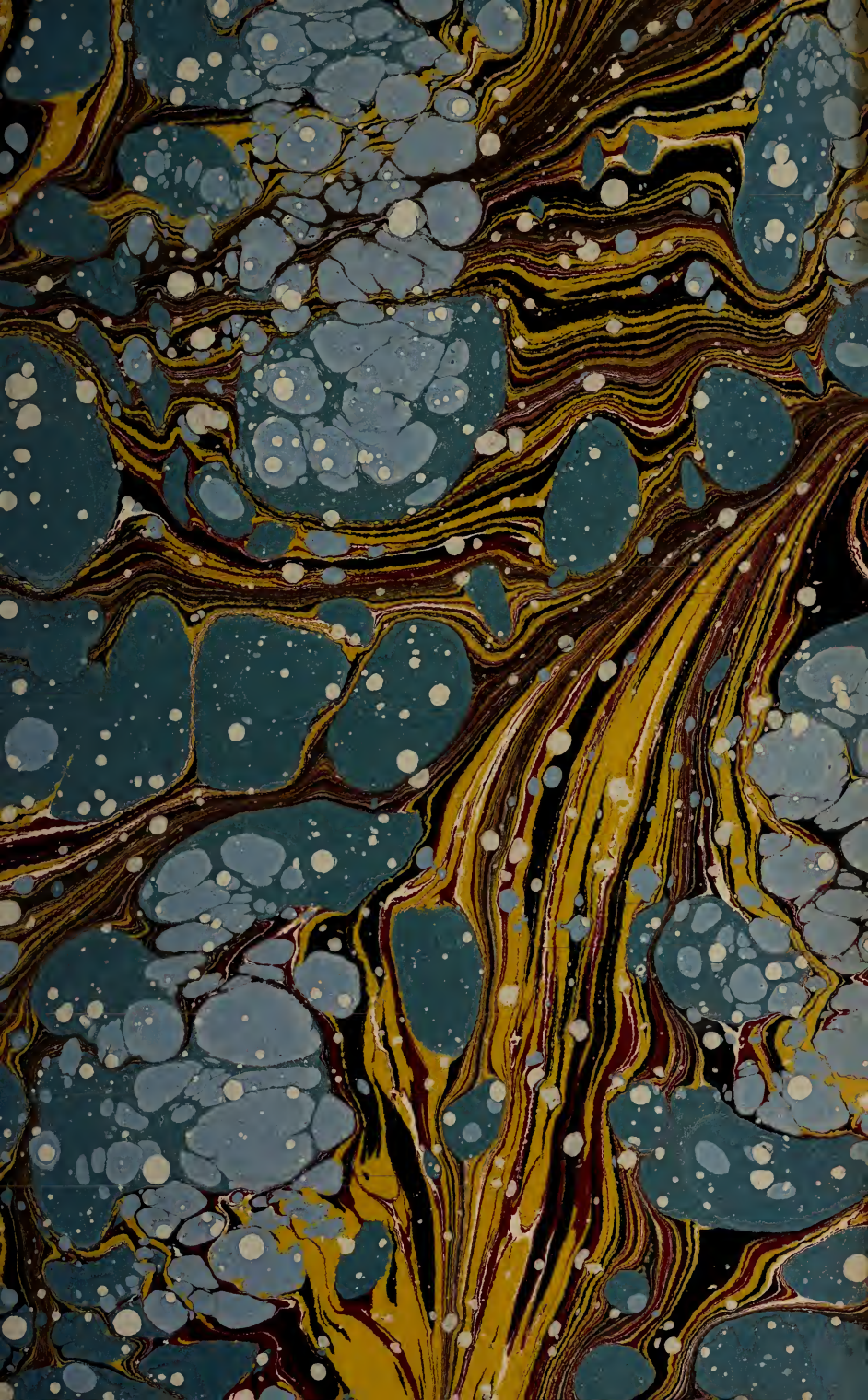

Grevillea.

A QUARTERLY RECORD OF

CRYPTOGAMIC BOTANY

AND ITS LITERATURE.

EDITED BY M. C. COOKE, M.A., A.L.S.,

Author of "Handbook of British Fungi," "Illustrations of British Fungi," "Fungi, their uses," &c., "Rust, Smut, Mildew, and Mould," "British Fresh Water Algæ," "British Desmids," &c., &c.

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Grevillea,

A QUARTERLY RECORD OF CRYPTOGAMIC BOTANY AND ITS LITERATURE.

NEW BRITISH FUNGI.

By M. C. Cooke.

(*Continued from Vol.* xvi., *p.* 102.)

Agaricus (Pholiota) molliscorium, *Cke. & Mass.*

Pileus fleshy, convex, then plane, obtuse, at length depressed, even, smooth, soft like kid leather, tawny yellow; disc darker, dry, shining (2-3 in. broad); margin acute, thin; stem equal, paler, erect, fistulose (3 in. long, $\frac{1}{4}$-$\frac{1}{3}$ in. thick), silky, punctately squamulose at the apex; ring broad, distant, brownish, deciduous; flesh yellow; gills narrowly adnate, ventricose, crowded, thin, ferruginous; spores elliptical, smooth, ferruginous, 12 × 5-6 μ.

On the ground. Carlisle. (Dr. Carlyle.)

Taste and smell none. Habit that of *A. præcox*, with which it was associated, but differing in the yellow colour and the bright ferruginous gills. Near to *Ag. ombrophilus*, Fr.

Hygrophorus (Hydrocybe) spadiceus, *Scop. Carn.* ii., 443. *Fr. Hym. Eur.* 420.

Fragile; pileus thin, conical, acute, repand, fibrillosely virgate, at first covered with an olivaceous bay-brown gluten; stem hollow, equal, dry, becoming dusky and fibrillose; gills rounded behind, free, distant, lemon-yellow.—*Fr. Icon. t.* 168, *fig.* 1.

On the ground. July. Clun Forest. (W. Phillips.)

Somewhat resembling *H. conicus*, but not turning black.

Lactarius (Piperites) umbrinus, *Pers. Syn.* 435.

Pileus compact, convex, then plane, umbilicate, dry, floccosely cracking, umber, without zones (3 in. broad); stem solid, very short (about an inch long), white, becoming cinereous; gills crowded, pallid, growing yellowish; milk acrid, white, making greyish spots.—*Fr. Hym. Eur.* 429. *Cooke Illus. t.* 1006.

In damp places. Epping.

Lactarius (Russularia) tomentosus, *Otto, Krombh. t.* 40, *f.* 17, 18.

Pileus at first umbonate, then depressed and infundibuliform; dull flesh colour, becoming rufous and tawny, delicately tomentose (2-3 in. diam.); stem erect, at first stuffed, then somewhat hollow, pallid, naked, smooth; substance compact (2 in. long, $\frac{1}{2}$ in. thick);

gills subdecurrent, yellow flesh colour ; milk white (spores 8-9 μ diam.).—*Cooke Illus. t.* 1010.

In swampy ground. Orton Moss, near Carlisle.

Fries quotes Krombholz's figure under *L. helvus* with the note "haud bona." It should doubtless be kept distinct, if only as a sub-species.

Lactarius (Russularia) mammosus, *Fr. Hym. Eur.* 434.
var. **monstrosus,** *Fr. Icon. t.* 170, *f.* 2.

Pileus fleshy, acutely umbonate, then depressed (2-3 in. diam.), dry, zoneless, lurid, clad with an interwoven grey down; stem stuffed, then hollow, pubescent, pallid (with a lurid purplish tinge, 2-3 in. long, $\frac{1}{2}$ in. thick, or more), gills adnate, crowded, whitish, then pale ferruginous (scarcely other than *whitish* in this variety). Milk white, slowly acrid (spores about 10μ).—*Cooke Illus. t.* 995.

On the ground. Scarborough. (G. Massee).

Lactarius Terreyi, *B. & Br., Ann. N. Hist. No.* 1673, seems to be the same as *L. cimicarius*, or a variety of *L. camphoratus*, to which the specimens are referred in Herb. Berkeley.

Lactarius (Russularia) spinosulus, *Quel. Norm. p.* 20, *t.* 3, *f.* 10.
var. **violaceus,** *Cooke Illus. t.* 998 B.

Pileus thin, convex, then depressed (1 in. diam.), dry, tomentose, somewhat aculeate, violet, flesh paler, margin incurved, stem equal, stuffed, granulate, paler, growing pallid (2 in. long, $\frac{1}{4}$ in. thick), gills decurrent, narrow, thin, yellowish. Milk white, soon acrid.

On the ground. Chatsworth, Sept. 1873.

Lactarius (Russularia) cremor, *Fries Hym. Eur.* 432.
var. **pauper,** *Karst. Symb. × p.* 58. *Icon. f.* 26.

Pileus fleshy, soft, rather plane, smooth, without zones, flesh colour, then yellowish, or gilvous tan colour, rather ochraceous when dry, punctate (3 in. broad or more), margin membranaceous, at length pectinately sulcate ; stem hollow, equal, naked, smooth, paler than the pileus (about 2 in. long $\frac{1}{2}$ in. thick), gills adnate, rather distant, thin, soft, colour of the pileus, flesh without juice, slowly acrid, white (spores 8-9 μ).—*Cke. Illus. t.* 1008.

Under fir trees. Carlisle.

Russula (Fragiles) Barlæ, *Quelet. Ass. Fr.* 1883, *t.* VI., *f.* 12. *Sacc. Syll.* V., 1860.

Pileus convex, then flattened and depressed ($2\frac{1}{2}$-$3\frac{1}{2}$ in.), compact, viscid, then dry, even, peach coloured, yellow, tinged with orange red, sometimes cracking ; flesh firm, sweet, white, slightly smelling of melilot, stem fleshy, spongy, firm, silky pruinose, snow white (2 in. long, $\frac{1}{2}$ in. thick), gills white, then becoming pallid ochraceous. Spores sub-globose, granular, 12 × 10 μ.

Amongst grass, under trees. Kew, Epping Forest.

Our specimens seem to be referable to this species, the pileus has the centre always darker, tinged with a peculiar dull red, the margin bright ochre with a tinge of orange, the whole becoming pale and ochraceous in drying. The flesh of the stem sometimes turns reddish brown when cut, and the odour in age is rather that of crab than of melilot.

Russula (Fragiles) fingibilis, *Britz. Hym. Sudb.* IV., *f.* 32.

Pileus yellow, convex, then plane or depressed, viscid, darker in the centre (about 2 in. diam.), thin towards the margin, but not striate. Stem equal, soft, white, spongy, at length hollow (2 in. long, $\frac{1}{3}$ in. thick), flesh white, mild, inodorous. Gills rather unequal, attenuated behind, somewhat crowded, thin, white. Spores nearly globose, 8-10 μ.

Under trees. Kew, July, 1882.

As far as it is possible to identify any of Britzelmayr's species this seems to accord, taking into account the additions we have made to the diagnosis.

Hypocrea moriformis, *Cke. & Mass.*

Fleshy, hemispherical (1 mm. diam.), scattered, pallid, at length black; perithecia convex, minute, rather prominent, pierced with a pore; asci cylindrical, sporidia uniseptate, then dividing into cubically globose frustules, olive, smooth (5-6 μ).

On rotten wood. Carlisle. (Dr. Carlyle).

Perithecia distinctly indicated, resembling a miniature mulberry.

Nectria pallidula, *Cooke.*

Perithecia cæspitose, globose, minute ($\frac{1}{5}$ mm.), smooth, pale ochre, bursting through the cuticle in irregular tufts, sometimes of one or two, sometimes 12 to 20 perithecia, effused when growing on naked wood. Asci clavate-cylindrical, sporidia for the most part uniseriate, subfusiform, uniseptate, hyaline (12×3 μ).

On beech bark and wood. Carlisle. (Dr. Carlyle).

Mucor lateritius, *Cke. & Mass.*

Mycelium forming a continuous dense, dry, bright-brown felt, spreading over the tuber. Fertile hyphæ erect, simple or furcate; capitulum globose, sporidia subglobose (12×9-10 μ), pale brick-red, smooth.

On putrid potatoes. Kew.

Trichosporium umbrinum, *Link.*

Threads branched, bay-brown, forming a dense, long, and broadly effused interwoven stratum; conidia globose, smooth, brown (12-14 μ diam.).

Running over plant pots, &c. ("Gardeners' Chronicle.")

Œdocephalum sulfureum, *Cke. & Mass.*

Tufts hemispherical or confluent, sulphur-coloured. Threads septate, dichotomous, globosely capitulate at the apex, papillate, conidia globose, hyaline (3-5 μ diam.). Epispore smooth.

On rope. Herbarium grounds, Kew.

Melanconium rusci, *Cke. & Mass.*

Pustules scattered, orbicular, erumpent, covered by the lacerated brown cuticle. Conidia elliptical, continuous, sooty-olive ($12 \times$ 7-8 μ).

On phyllodes of *Ruscus aculeatus*. Kew.

This cannot be a form of *Sphæropsis rusci*, for there is no perithecium, and the pustules are scattered and solitary.

BRITISH PYRENOMYCETES.

By G. Massee.

(*Continued from Vol.* xvi., *p.* 120.)

Fam. 10. PERTUSÆ. Perithecia emergent, smooth, flattened at the base, adnate or subimmersed. Ostiolum papillate, or pierced.

Gen 1. **CONISPHÆRIA.** Sporidia hyaline.

* Zignoina. *Sporidia continuous.*

C. rhodobapha, *B. & Br.*, *Sacc. Syll.* 3659.
On old wood. South Kensington, Bristol.

** Melanopsamma. *Sporidia uniseptate.*

C. pæcilostoma, *B. & Br.*, *Sacc. Syll.* 3652.
On furze. Lynn.

*** Melomastia. *Sporidia biseptate.*

C. Friesii, *Nke.*, *Sacc. Syll.* 3625 ; *Hdbk.* 2620 (= *S. Loniceræ*, Sow.).
On honeysuckle. Highgate, Shere, Lynn.

**** Zignoella. *Sporidia multiseptate.*

C. hysterioides, *Curr.*, *Grev.* xvi., 92.
On rotten wood. Chislehurst.
C. macrasca, *Sacc. Syll.* 3668.
On bleached elm wood. Bulwer, Yorks, Scarboro'.

Gen. 2. **TICOTHECIUM.** *Flot.* Perithecia minute, growing on Lichens. Sporidia septate.

* Pharcidia. *Sporidia hyaline.*

** Genuina. *Sporidia coloured.*

† *Sporidia uniseptate.*

T. gelidarium, *Mudd.*, p. 130; *Sacc. Syll.* 2232.
On *Squamaria gelida*. Teesdale.
T. perpusillum, *Nyl.*, *Sacc. Syll.* 6593.
On *Aspicilia*. Gloucestershire, Ben Cranchan, Kylemore (I.).
T. calcaricolum, *Mudd.*, p. 306 ; *Sacc. Syll.* 6597.
On *Aspicilia*. Lewes, Sussex, Longmynd, Ben Lawers, Ireland.
T. gemmiferum, *Tayl.*, *Sacc. Syll.* 6598.
On lichens. Shrewsbury, Penzance, Cleveland, Grampians, Wales, Ireland.

T. squamarioides, *Mudd.*, p. 130 ; *Sacc. Syll.* 6600.
On *Squamaria gelida*. Teesdale.
T. cerinarium, *Mudd.*, p. 136 ; *Sacc. Syll.* 6602.
On *Callopisma*. Near Ayton, Cleveland.

†† *Sporidia triseptate.*

T. pygmæum, *Korb.*, *Sacc. Syll.* 6604.
On *Aspicilia*. Bræmar and Lough-na-cat, Scotland ; Armagh, Cleveland. (v. *Ventosicola*, Mudd.)
On *Hæmatococca*. Kildale Moor.
T. leucomelarium, *Mudd. Man.* p. 105 ; *Sacc. Syll.* 6605.
On *Borrera*. Cork.
T. rimosicolum, *Leight.*, *Sacc. Syll.* 6606.
On *Diplotomma calcareum*. Wrekin, Penhill, Yorks, Carlton Bank, Cleveland, Ben Lawers, Appin, Killarney, Galway.

Gen. 3. **AMPHISPHŒRIA.** Sporidia coloured.

* Amphisphœrella. *Sporidia continuous.*

** Genuina. *Sporidia uniseptate.*

A. ventosaria, *Linds. Sacc. Syll.* 2761.
On *Lecanora ventosa*. Lochnagar.

⁂ Melanomma. *Sporidia* 2-3 *septate.*

A. Jenynsii, *B. & Br.*, *Sacc. Syll.* 3232.
On wood. Bottisham, King's Cliffe, Batheaston.
A. obliterans, *B. & Br.*, *Sacc. Syll.* 3233 ; *Hdbk.* 2621.
On fir. Forres, N.B.

⁂ *Sporidia* 4 *or many septate.*

A. brachythele, *B. & Br.*, *Sacc. Syll.* 3269 ; *Hdbk.* 2609.
On elder. Batheaston, Gopsall, Chislehurst.

⁂ Trematosphæria. *Perithecia large, sporidia* 3 *or multiseptate.*

A. pertusa, *Pers.*, *Sacc. Syll.* 3285 ; *Hdbk.* 2604.
On wood. Bishop's Wood, Epping.
A. anglica, *Sacc. Syll.* 3286.
On ash. King's Lynn.
A. melina, *B. & Br.*, *Sacc. Syll.* 3294.
On ash. Batheaston.
A. lunariæ, *Curr.*, *Grev.* xvi., 92.
On decorticated branches of ash.

⁂ Caryospora. *Sporidia very large, apiculate.*

A. callicarpa, *Curr.*, *Sacc. Syll.* 3313 ; *Hdbk.* 2605.
On wood. Kidbrooke.

Gen. 4. **WINTERIA**, *Rehm*. Perithecia rather soft, green or rufous.

* *Sporidia septate, pale.*

W. ordinata, *Fr.*, *Sacc. Syll.* 3680 ; *Hdbk.* 2583.
On naked oak wood. Little Heath, Essex.

BERKELEY AND CURTIS TYPES.

By M. C. Cooke.

Some of the junior mycologists of the United States are committing a dangerous mistake in their estimate of the Curtis herbarium, and the relation of the late Dr. Curtis to the species published under the joint names of Berkeley and Curtis. The cardinal error consists in regarding the Curtisian specimens as the *types*, which some are now insisting upon, but which they are *not*, and only a misapprehension of the signification of a "type" can have led to this assumption. Dr. Curtis collected the specimens it is true, but he did not describe them ; all the diagnoses were drawn up and published by the Rev. M. J. Berkeley, in their joint names, from specimens communicated by Dr. Curtis. Hence the only legitimate type specimens are those upon which the diagnoses were constructed, and which are preserved in the Berkeley Herbarium. Wherever it may occur that specimens in the Curtis Herbarium do *not* accord with those in the Berkeley Herbarium no one can attempt to deny that the specimens in the Berkeley Herbarium *must* be regarded as the type, and no other. There cannot possibly be two types, and the genuine type must essentially be that upon which the diagnosis is founded. It is folly to introduce anything like "spread-eagleism" into a question of this kind, but far wiser to accept facts as they stand, and recognize the Curtisian Herbarium as containing presumed duplicates of specimens sent to Berkeley and constituted by him the types of certain species, at the same time admitting that when they differ this is not to be attributed to error in the diagnosis, but to an error on the part of Dr. Curtis, whom we know, from experience of specimens communicated to ourselves, did not pay sufficient regard to microscopical characters to be absolutely trustworthy. No one who knows anything of the history of the Berkeley and Curtis connection can dispute this statement of the *facts*, and we contend that consequently no fictitious value should be given to the Curtisian specimens, nor any preference accorded to them when they happen to differ from the only true and veritable *type*-specimens, upon which the diagnoses were based. Nothing could have originated such an error as we have intimated above, save an ignorance of the initial facts, which we have now endeavoured to set forth in a clear and impartial manner, in the hope that all misapprehension may thereby be removed.

AUSTRALASIAN FUNGI.

By M. C. Cooke.

(*Continued from Vol.* xvi., *p.* 114.)

Those indicated by an asterisk (*) communicated by Baron F. Von. Mueller.

*** Agaricus (Entoloma) galbineus,** *Cke. & Mass.*

Sulphur colour. Pileus rather fleshy, convex then expanded, obtusely umbonate (1-2 in. broad), umbo darker, almost saffron-colour, smooth, moist ; stem equal, fibrillose, fistulose (2 in. long, 2-3 lines thick). Gills slightly adnexed, ventricose, pallid. Spores rosy, globose, angular, 10 μ diam.

On the ground. Walhalla (*Tisdall* 48).

*** Agaricus (Leptonia) quinquecolor,** *Cke. & Mass.*

Pileus membranaceous, convex, smooth, slightly virgate with radiating pink fibrils ; margin yellowish, disc brownish brick-red (about 1 in. diam.), stem cylindrical, equal, or slightly attenuated upwards, fistulose, bay brown, whitish flocculose at the base (2 in. long, 1 line thick), usually cæspitose ; gills sinuately adnate, rosy. Spores globose, rough, 8-10 μ.

On black loam. Walhalla (*Tisdall* 54).

*** Agaricus (Hebeloma) arenicolor,** *Cke. & Mass.*

Pileus fleshy, convex then plane, smooth, rather viscid, dingy ochre or sand colour ($1\frac{1}{2}$-2 in. broad). Stem cylindrical, subfibrillose, smooth, same colour as the pileus, fistulose, terminating at the base in a conical root (3 in. long, $\frac{1}{4}$ in. thick), gills adnate, rounded behind, scarcely crowded, ventricose, pallid, then ochraceous. Spores ellipsoid, dingy umber, 20 × 10-12 μ.

On the ground. Near Melbourne (*Tisdall* 44, 49).

*** Calocera (Ramosæ) digitata,** *Cke. & Mass.*

Branched (1-$1\frac{1}{2}$ in. high), tough, even, pallid; trunk thin, smooth, twice or three times furcate, branches expanded at the apex in a spathulate manner, each bearing from 3 to 5 delicate scyphoid processes arranged like fingers on the open hand. Spores white, elliptical, 5-6 × 3 μ.

On damp logs. Fern gully, Dandenong (*French,* No. 2).

Didymium australis, *Massee.*

Sporangium globose or slightly compressed, indistinctly umbilicate, covered with a dense white layer of crystals of lime which breaks away in patches ; stem elongated, erect, filiform, slightly thickened downwards, bright brown ; threads of capillitium colourless, slender, variously branched ; spores globose, smooth, dingy, purple-brown, 10-11 μ diam.

Gregarious. Stem 3-4 mm. long; sporangium about 2 mm. broad × 1-5 mm. high.

On old *Auricularia.* Brisbane (*Bailey* 596).

Ustilago sclerotiformis, *Cke. & Mass.*

Black, compact, obovate, large (2 mm. diam), never becoming powdery, spores subglobose, dark umber (16-18 μ diam.). Epispore granulose.

Absorbing the ovaries of *Uncinia cæspitosa.* Taheraite, New Zealand (*Kirk.* 321).

Somewhat resembling *U. marmorata*, B., but that species has spores distinctly verrucose, in the type specimens, although included by F. de Waldheim with the smooth-spored species.

*** Cucurbitaria (Melanomma) plagia,** *Cke. & Mass.*

Perithecia densely crowded, forming oblong erumpent clusters, which are at length almost superficial, and confluent in large patches, 2-3 in. long; the individual perithecia are globose, but compressed and deformed by crowding, black, shining, smooth. Ostiolum minute. Asci cylindrical; sporidia in one or two series, lanceolate, triseptate, pale-brown (40-45 × 10-12 μ).

On living twigs of *Cassinia aculeata.* Port Phillip (*French*).

Resembling *Otthiella morbosa* in habit.

Fusicolla incarnata, *Cke. & Mass.*

Epiphyllous. Pustules small, gregarious, seated on paler spots, convex, rosy flesh colour, here and there confluent (scarce $\frac{1}{4}$ mm. diam.), somewhat gelatinous, or scattered over the petioles, and midribs. Conidia cylindrical, rounded at the ends, nucleate or granular, hyaline, straight, simple, 16-20 × 4-5 μ. Sporophores very short and deciduous.

On dead coriaceous leaves. Brisbane (*Bailey* 597).

BRITISH HYPHOMYCETES.

(*Concluded from Vol.* XVI., *p.* 113.)

Ord. 3. *STILBEÆ.*

Ser.* Hyalostilbeæ.

Stilbum melleum, *B. & Br. Sacc. Syll.* IV., 2667.
On bark. Congresbury.

Stilbum orbiculare, *B. & Br. Sacc. Syll.* 2676.
On Lindbladia effusa. Aviemore, Rothiemurchas, N.B.

Stilbum tomentosum, *Schr. Sacc. Syll.* 2677.
On Trichia. Scotland, Scarboro', Forden, Shere, Hitchen, Twycross, Carlisle, Apethorpe, Haywood Forest.

Stilbum erythrocephalum, *Ditm. Sacc. Syll.* 2680.
On dung. Scarboro', Orton Wood.

Stilbum vulgare, *Tode. Sacc. Syll.* 2682.
On rotten wood. Scotland, Scarboro', Berwick.

Stilbum pellucidum, *Schrad. Sacc. Syll.* 2685.
On wood and rotten fungi. Appin.

Stilbum acicula, *Sacc.* *Sacc. Syll.* 2691.
On herb stems. Apethorpe.

Stilbum vaporarium, *B. & Br.* *Sacc. Syll.* 2698.
On wood in stoves. Kew Gardens.

Stilbum fasciculatum, *B. & Br.* *Sacc. Syll.* 2699.
On wood. Swansea, Wrekin, Kew.

Stilbum fimetarium, *Pers.* *Sacc. Syll.* 2710.
On dung. Scarboro', Shrewsbury, Downton, near Ludlow, Cowarne Court, Elmstead, Ringmer, Epping, King's Lynn.

Stilbum aurantiacum, *Bab.* *Sacc. Syll.* 2714.
On branches. Leicestershire, Salisbury, Shrewsbury.

Stilbum turbinatum, *Tode.* *Sacc. Syll.* 2718.
On trunks. Twycross.

Stilbum ranigenum (*B. & Br.* = *Acremonium*). *Sacc. Syll.* 2719.
On rotten branches. Monkton Farleigh.

Stilbum tetraonum, *Cke.*
On grouse dung. Rannoch.

Stilbum citrinellum, *Cke. & Mass.* *Grev.* XVI., 81.
On leaves of *Lycopodium*. Kew.

Stilbum nigripes (*Carm.*), *Cke.* *Grev.* XVI., 81.
On oak leaves. Appin.

Pilacre faginea, *Fr.* *Sacc. Syll.* 2748.
On rotten beech. Wiltshire.

Pilacre Petersii, *B. & C.* *Sacc. Syll.* 2752.
On rotten hornbeam. Epping Forest, Hainault Forest, Lyndhurst.

Coremium glaucum, *Fr.* *Sacc. Syll.* 2758.
On rotting fruit. Edinburgh.

Coremium coprophilum, *B.* *Sacc. Syll.* 2753.
On rabbit's dung. Kew.

Isaria farinosa, *Dicks.* *Sacc. Syll.* 2772.
On chrysalids. Hampstead, Darenth, Dinmore, Weybridge, Blackheath, Shere, Carlisle, Bristol.

Isaria crassa, *Link.* *Sacc. Syll.* 2774.
On chrysalids. Kent.

Isaria floccosa, *Fr.* *Sacc. Syll.* 2778.
On pupæ of *Bombyx Jacobœa*.

Isaria sphingum, *Schw.* *Sacc. Syll.* 2781.
On dead Lepidoptera.
On pupæ of Diptera. Kincardineshire.

Isaria arachnophila, *Ditm.* *Sacc. Syll.* 2791.
On spiders. Scotland.

Isaria felina, *D.C.* *Sacc. Syll.* 2793.
On cat's dung. London.

Isaria brachiata, *Batsch.* *Sacc. Syll.* 2800.
On fungi. Apethorpe.

Isaria citrina, *Pers.* *Sacc. Syll.* 2801.
On trunks and decaying fungi. Jedburgh.

Isaria intricata, *Fr.* *Sacc. Syll.* 2802.
On dead *Stereum.* Glamis, N.B., Scarboro', King's Cliffe, Lucknam, Exeter.

Isaria umbrina, *Pers.* *Sacc. Syll.* 2807.
On *Hypoxylon coccineum.* Batheaston, Sydenham, Dinmore.

Isaria microscopica, *Grev.* *Sacc. Syll.* 2808.
On *Trichia clavata.* Auchindenny, N.B.

Isaria Friesii, *Mont.* *Sacc. Syll.* 2809.
On bark. Milton, Apethorpe, Spye Park.

Isaria albida (*Fr.*). *Sacc. Syll.* 2814.
On rotten wood. King's Cliffe.

Isaria spumarioides, *Cooke.* *Sacc. Syll.* 2816.
On bark. Knowsley.

Isaria tomentella, *Fr.* *Sacc. Syll.* 2832.
On leaves. *Ann. Nat. Hist.* No. 1711.

Isaria fuciformis, *Berk.* *Sacc. Syll.* 2839.
On grasses. Ashford, Kent.

Isaria puberula, *Berk.* *Sacc. Syll.* 2840.
On dahlia flowers. Apethorpe.

Isaria muscigena, *Cooke & Mull.* *Grev.* XVI., 81.
On moss. Eastbourne.

Ceratium hydnoides, *A. & S.* *Sacc. Syll.* 2845.
On rotten wood. Scotland, Scarboro', Dinmore, Carlisle, Oldham, Appin, Tansor (Notts.), Holm Lacey.

Atractium flammeum, *B. & R.* *Sacc. Syll.* 2860.
On bark. Penzance.

Ser.** Phæostilbeæ.

Sporocybe byssoides, *Pers.* *Sacc. Syll.* 2877.
On herb stems. Darenth, Shere, Forden, Batheaston, Apethorpe, Charmy Down, Shrewsbury.

Sporocybe brassicæcola, *B. & Br.* *Sacc. Syll.* 2878.
On cabbage stalks. Batheaston.

Sporocybe cuneifera, *B. & Br.* *Sacc. Syll.* 2879.
On cabbage stalks. Batheaston.

Sporocybe calicioides, *Fr.* *Sacc. Syll.* 2885.
On beech trunks. (Scotland ?).

Sporocybe atra (*Desm.*). *Sacc. Syll.* 2891.
On grass. Isle of Wight.

Sporocybe Phillipsii, *B. & L.* *Sacc. Syll.* 2894.
On naked soil. Trefriew, N.W.

Graphium stilboideum, *Corda.* *Sacc. Syll.* 2896.
On cabbage stems. Batheaston.

Graphium rigidum, *Pers.* *Sacc. Syll.* 2897.
On rotten trunks. Glamis, N.B., Carlisle.

Graphium calicioides (*B.*). *C. & Mass.* *Grev.* XVI., 11.
On wood. Kew, Glamis.

Graphium Desmazierii, *Sacc. Syll.* 2898.
On rotten trunks.

Graphium flexuosum, *Mass. Sacc. Syll.* 2902.
On rotten wood. Scarboro'.

Graphium subulatum, *Nees. Sacc. Syll.* 2910.
On acorns and fir cones. Scotland, Scarboro', King's Cliffe.

Graphium Grovei, *Sacc. Syll.* 2911.
On wood. Hampton in Arden.

Graphium Passerinii, *Sacc. Syll.* 2912.
On *Gynerium argenteum.* Kew.

Graphium Stevensonii, *B. & Br. Sacc. Syll.* 2915.
On rotten wood. Glamis, N.B.

Graphium griseum, *Berk. Sacc. Syll.* 2926.
On herb stems. Kinrara, N.B.

Graphium glaucocephalum, *Corda. Sacc. Syll.* 2927.
On nettle stems. Burnt Ash Lane (F. Currey).

Graphium, piliforme, *Pers. Sacc. Syll.* 2928.
On herbs. Appin.

Graphium nigrum, *Berk. Sacc. Syll.* 2931.
On culms of *Eriophorum.* Stibbington.

Graphium anomalum, *Berk. Sacc. Syll.* 2937.
On dead branches. King's Cliffe.

Graphium bicolor, *Pers. Sacc. Syll.* 2943.
On trunks. Appin.

Graphium graminum, *Cke. & Mass. Grev.* XVI., 11.
On *Gynerium.* Kew.

Harpographium graminum, *Cke. & Mass. Grev.* XVI., 81.
On straw. Hampstead.

Stysanus stemonitis, *Pers. Sacc. Syll.* 2951.
On trunks, herbs, &c. Greeshop, N.B., Chislehurst, Kew, Holloway.

Stysanus putredinis, *Corda. Sacc. Syll.* 2965.
On rotten leaves. Glamis, N.B.

Stysanus clematidis, *Fckl. Sacc. Syll.* 2960.
On clematis. Batheaston.

Graphiothecium parasiticum (*Desm.*). *Sacc. Syll.* 2971.
On dead leaves. Dartford.

Arthrobotryum stilboideum, *Ces. Sacc. Syll.* 3986.
On wood. St. Catharines.

Arthrobotryum atrum, *B. & Br. Sacc. Syll.* 2987.
On herb stems. Charmy Down, Batheaston.

Ord. 4. *TUBERCULARIEÆ.*

Tubercularia vulgaris, *Tode. Sacc. Syll.* 3002.
On branches. Very common.

Tubercularia granulata, *Pers. Sacc. Syll.* 3006.
On *Robinia*, &c. Scotland.

Tuberculariа ligustri, *Cke. Grev.* XVI., 49.
On *Ligustrum.* Kew.

Tuberculariа nigricans, *Bull. Sacc. Syll.* 3009.
On *Ulmus,* &c. Jedburgh.

Tuberculariа euonymi, *Roum. Sacc. Syll.* 3013.
On *Euonymus.* Kew.

Tuberculariа conorum, *C. & M. Grev.* XVI., 49.
On fir cones. Carlisle.

Tuberculariа aquifolia, *C. & M. Grev.* XVI., 49.
On holly leaves. Highgate.

Tuberculariа æsculi, *Opiz. Sacc. Syll.* 3014.
On *æsculus.* Kew Gardens.

Tuberculariа expallens, *Fr. Sacc. Syll.* 3015.
On *æsculus.* Kew Gardens.

Tuberculariа confluens, *Pers. Sacc. Syll.* 3017.
On *salix* and *acer.* Common.

Tuberculariа sambuci, *Corda. Sacc. Syll.* 3020.
On *Sambucus.* Kew.

Tuberculariа versicolor, *Sacc. Syll.* 3036.
On box twigs. King's Cliffe.

Tuberculariа sarmentorum, *Fr. Sacc. Syll.* 3042.
On ivy. Neatishead, Batheaston.

Tuberculariа herbarum, *Fr. Sacc. Syll.* 3056.
On herb stems.

Tuberculariа brassicæ, *Lib. Sacc. Syll.* 3057.
On cabbage stalks. Isleworth.

Dendrodochium citrinum, *Grove. Sacc. Syll.* 3083.
On rotten pine wood. Burntgreen (Warw.).

Tuberculina persicina, *Ditm. Sacc. Syll.* 3088.
Parasitic on uredines. Dinmore.

Illosporium roseum, *Schreb. Sacc. Syll.* 3100.
On lichens. Scotland, Bungay, Hampstead, Wellington (Salop), Whitwick, Batheaston.

Illosporium coccineum, *Fr. Sacc. Syll.* 3101.
On lichens. Twycross.

Illosporium corallinum, *Rob. Sacc. Syll.* 3102.
On *Parmelia parietina,* &c. Shrewsbury.

Illosporium carneum, *Fr. Sacc. Syll.* 3103.
On *Peltigera,* &c. Moncrieffe, N.B., N. Wootton, Plymouth, Apethorpe.

Illosporium Curreyi, *Sacc. Syll.* 3116 (Arthroderma, *Berk.*).
On branches and leaves. Hereford.

Ægerita candida, *Pers. Sacc. Syll.* 3124.
On wood. Scotland, Scarboro', Coed Coch, near Manchester, Spye Park, Twycross, Appin, Downton.

Ægerita virens, *Carm. Grev.* XVI., 81.
On (birch ?) bark. Appin.

Fusicolla Betæ, *Bon.* *Sacc. Syll.* 3142.
On beetroot.

Sphacelia segetum, *Lev.* *Sacc. Syll.* 3147.
On *Sclerotium clavum.*

Sphacelia typhina, *Pers.* *Sacc. Syll.* 3150.
On *Dactylis.* Common form of *Epichlöe.*

Hymenula constellata, *B. & Br.* *Sacc. Syll.* 3170.
On chips. Batheaston.

Hymenula rubella, *Fr.* *Sacc. Syll.* 3171.
On *Typha.* Lincolnshire.

Hymenula Berkeleyi, *Sacc. Syll.* 3174 (punctiformis, *B.*).
On larch. Batheaston.

Hymenula vulgaris, *Fr* *Sacc. Syll.* 3157.
On nettle stems. Twycross.

Hymenula pezizoides, *Phil.*
On pine leaves. Forres, N.B.

Cylindrocolla Urticæ, *Pers.* *Sacc. Syll.* 3190.
On nettle stems. Very common. Highgate, Eltham, Forden, Shere, Epping, Twycross, Shrewsbury, Thirsk, King's Cliffe, Audley End, Darenth, Tunbridge, Downton, Breenton.

Periola tomentosa, *Fr.* *Sacc. Syll.* 3219.
On potatoes. King's Cliffe.

Volutella ciliata, *A. & S.* *Sacc. Syll.* 3223.
On potato. Sanquhar, N.B., King's Cliffe.

Volutella roseola, *Cooke.* *Sacc. Syll.* 3230.
On *Billbergia.* Glasnevin (I.).

Volutella hyacinthorum, *Berk.* *Sacc. Syll.* 3231.
On bulbs. King's Cliffe, Dublin.

Volutella setosa, *Grev.* *Sacc. Syll.* 3235.
On herb stems. Scotland, Appin, Dartford, Dupplin, N.B., Rotherwas, Credinhill.

[**Volutella nivea**, *Sacc. Syll* 3236 (= Psilonia, *Fries*).
On bark of *Fagus.* Is *Adelges Fagi*, according to authentic specimens.]

Volutella buxi, *Corda.* *Sacc. Syll.* 3237.
On box leaves. King's Cliffe, Dorking, Whitehall.

Volutella gilva, *Pers.* *Sacc. Syll.* 3240.
On putrid leaves. Southwick, Notts.

Volutella discoidea (*B. & Br.*, sub. *Psilonia*), *Sacc. Syll.* 3246.
On chips. Wilts, Chippenham.

Volutella melaloma, *B. & Br.* *Sacc. Syll.* 3252.
On leaves of *Carex.* Spye Park.

Volutella arundinis, *Desm.* *Sacc. Syll.* 3261.
On sheaths of reed. Spye Park.

Endodesmia glauca, *B. & Br.* *Sacc. Syll.* 3267.
On cabbage stalks. Batheaston.

Bactridium flavum, *Kunze.* *Sacc. Syll.* 3268.
On rotten wood. Audley End, King's Lynn, Bristol, Ascot, Batheaston, King's Cliffe.

Bactridium acutum, *B. & W.* *Sacc. Syll.* 3275.
On hymenium of *Peziza*. Glen Tilt, N.B.

Bactridium helvellæ, *B. & Br.* *Sacc. Syll.* 3276.
On hymenium of *Peziza*. Batheaston.

Bactridium atrovirens, *Berk.* *Sacc. Syll.* 3278.
On trunks. Apethorpe.

Fusarium sarcochroum, *Desm.* *Sacc. Syll.* 3281.
On branches. Sydenham.

Fusarium pyrochroum, *Desm.* *Sacc. Syll.* 3282.
On acorns. Kew.

Fusarium lateritium, *Nees.* *Sacc. Syll.* 3283.
On branches. Scotland, Milton, King's Cliffe, Dinmore.

Fusarium viticola, *Thum.* *Sacc. Syll.* 3288.
On *Ampelopsis*. Kew.

Fusarium tuberculariodes, *Corda.* *Sacc. Syll.* 3299.
On branches of raspberry.

Fusarium fœni, *B. & Br.* *Sacc. Syll.* 3306.
On damp hay. Apethorpe.

Fusarium myosotidis, *Cke.* *Grev.* XVI., 49.
On leaves of *Myosotis*. Forden.

Fusarium inæquale, *Awd.* *Sacc. Syll.* 3310.
On herbs.

Fusarium diffusum, *Carm.* *Grev.* XVI., 81.
On stems of thistles. Appin (Carmichael).

Fusarium roseum, *Link.* *Sacc. Syll.* 3311.
On stems and leaves. Downton, Highgate, Neatishead, King's Cliffe, Apethorpe.

Fusarium brassicæ, *Thum.* *Sacc. Syll.* 3314.
On cabbage stalks. Isleworth, Twycross.

Fusarium aurantiacum, *Corda.* *Sacc. Syll.* 3334*.
On gourds. Apethorpe.

Fusarium cœruleum, *Lib.* *Sacc. Syll.* 3335.
On potatoes.

Fusarium solani, *Mart.* *Sacc. Syll.* 3336.
On potatoes. Common.

Fusarium heterosporum, *Nees.* *Sacc. Syll.* 3343.
On grasses. Goole, Hereford, Batheaston.

Fusarium mininum, *Fuckel.* *Sacc. Syll.* 3345.
On *Poa pratensis*. Isleworth.

Fusarium insidiosum, *Berk.* *Sacc. Syll.* 3346.
On *Agrostis*. Gard. Chron. 1860, p. 480.

Fusarium bulbigenum, *C. & M.* *Grev.* XVI., 49.
On Narcissus bulbs. London.

Fusarium filisporum, *Cooke.* *Sacc. Syll.* 3348.
On *Orthotrichum*. Eastbourne.

Fusarium obtusum, *Cooke*. *Sacc. Syll.* 3353.
On *Diatrype*. Forres, N.B.

Fusarium epimyces, *Cooke*.
On *Scleroderma*. Reading.

Fusarium mucophytum, *Sm. Gard. Chron.* 1884, *p.* 245.
On Agarics. Huddersfield.

* *Sub.-Gen.* Fusisporium, *Link*.

Fusarium roseolum, *Steph. Sacc. Syll.* 3363.
On potatoes. Forden, Bristol.

Fusarium bacilligerum, *B. & Br. Sacc. Syll.* 3370.
On leaves of *Rhamnus alaternus*. Spye Park (Wilts).

Fusarium heteronemum, *B. & Br. Sacc. Syll.* 3374.
On rotting pears. Batheaston.

Fusarium incarcerans, *Berk. Sacc. Syll.* 3383.
In capsules of *Orthotrichum*. Handbook, No. 1868.

Fusarium Kuhnii, *Sacc. Syll.* 3384.
On lichens and mosses.

Fusarium salicinum, *Corda. Sacc. Syll.* 3391.
On willow branches. Twycross.

Fusarium rhabdophorum, *B. & Br. Sacc. Syll.* 3395.
On branches on *Valsa*. Forres, N.B.

Fusarium cucumerinum, *B. & Br. Sacc. Syll.* 3410.
On rotting cucumbers. Sibbertoft.

Fusarium equisetorum (*Lib.*). *Sacc. Syll.* 3416.
On *Equisetum*. Oswestry, N. Wootton.

Fusarium aurantiacum, *Lk. Sacc. Syll.* 3428.
On herbs. King's Cliffe, Twycross.

** *Sub.-Gen.* Leptosporium, *Sacc.*

Fusarium translucens, *B. & Br. Sacc. Syll.* 3436.
On larch branches. Glamis, N.B.

Fusarium minutulum, *Corda. Sacc. Syll.* 3441.
On chips of hazel. St. Catherine's, Bath.

Pionnotes uda (*Berk.*). *Sacc. Syll.* 3468.
On trunks. King's Cliffe.

Pionnotes betæ (*Desm.*). *Sacc. Syll.* 3470.
On beetroot. Scotland, Scarboro', Apethorpe.

Microcera coccophila, *Desm. Sacc. Syll.* 3473.
On dead cocci on branches. Penzance.

TUBERCULARIÆ DEMATIEÆ.

Epicoccum vulgare, *Ca. Sacc. Syll.* 3482.
On stems. Kidbrooke.

Epicoccum granulatum, *Penz. Sacc. Syll.* 3484.
On *Sorghum cernuum*. Kew.

Epicoccum neglectum, *Desm. Sacc. Syll.* 3483.
On grasses. Scotland, Credinhill, Scarboro', Dublin, Goole, Kew, Wiltshire, Shrewsbury.

Epicoccum diversisporum, *Preuss. Sacc. Syll.*
On reeds. Kew.

Epicoccum herbarum, *Ca. Sacc. Syll.* 3489.
On leaves. Kew.

Epicoccum micropus, *Corda. Sacc. Syll.* 3492.
On *Lactarius*. Ascot.

Epicoccum equiseti, *Berk. Sacc. Syll.* 3504.
On *Equisetum*. Fineshade.

Epicoccum purpurascens, *Sacc. Syll.* 3481.
On *Gynerium*. Kew.

Epidochium atrovirens, *Fr. Sacc. Syll.* 5338.
On branches. Shere, Haywood Common, Leatherhead.

Myrothecium roridum, *Tode. Sacc. Syll.* 3550.
On dead leaves. Appin.

Myrothecium inundatum, *Tode. Sacc. Syll.* 3552.
On dead Agarics. Appin, Downton.

Exosporium tiliæ, *Link. Sacc. Syll.* 3569.
On *Tilia*. King's Lynn.

EXOTIC FUNGI.

By M. C. Cooke.

Marasmius (Calopodes) jubæacola, *Cke.*
Pileo submembranaceo, convexo-expanso, obtuse umbonato, demum depresso, subrugoso, densissime furfuraceo, opaco, albido (circa 1 unc. lata), stipite deorsum subattenuato, fuligineo, sursum albido, striatulo, tenui, curvato, farcto (1 unc. long, 2 mm. crass), lamellis distantibus, latis, venoso-connexis, adnato-decurrentibus, albis ; sporis clavatis, magnis 22×6 μ.
On trunk of *Jubæa*. Jardin des Plantes, Paris.
Allied to *M. vaillantii* and *M. inoderma*, but differing essentially in the very large clavate spores, very unusual in this genus.

Tilletia verrucosa, *Cke. & Mass.*
Ovariis inflatis, pallido-fuscis. Sporis globosis, solitariis, fuscis (15-16 μ diam.), episporio verrucoso, verrucis obtusis.
In the ovaries of *Panicum miliare* (Kirk).
Between Lupata and Tette, Tropical Africa.

Hydnum (Mesopus) aspratum, *Berk.*
Pileo carnoso, applanato, demum depresso, subinfundibuliformi, (5-6 unc. diam. vel ultra) azono, squamoso, umbrino. Stipite valido, crasso 3 in. long, 1 unc. crassæ, quali vel deorsum attenuato, sulcato, pallido, glabro ; aculeis acutis, decurrentibus, tenuibus, albo-fuscescentibus.
On the ground. Japan. Edible.

a — *e* MUTINUS CANINUS. *f* — *l* MUTINUS BAMBUSINUS.

MUTINUS BAMBUSINUS, IN BRITAIN.

Although the circumstance is somewhat unusual and inexplicable, it is nevertheless true that a genuine tropical species of *Phallus* has lately made its appearance in the open ground, amongst young plum trees in Noble's Nursery at Sunningdale. This particular species is *Mutinus bambusinus* (Zoll.), formerly called *Cynophallus bambusinus*, but changed in favour of an older generic name which has priority. How far it may be advisable to supersede a well-known, and generally-accepted, generic name in favour of another, simply on the ground of its antiquity, is a question we need not discuss.

By the kindness of Sir J. D. Hooker we examined a fresh specimen of this *Mutinus*, and were struck at once with the very strong and fœtid odour which escaped from the box in which it was enclosed, whereas our common *Mutinus caninus* is almost inodorous. The rosy stem and more elongated pileus were also striking. This species, of which a drawing and specimens may be found in the Berkeley Herbarium, from Java, was originally found and named by Zollinger, from its habit of growing at the base of bamboo clumps, in that island, and we are not aware of any other locality until it turned up so unexpectedly at Sunningdale. Whether the mycelium was imported with some of the exotics found in a large nursery and thus established itself may be probable, since it is doubtful whether it ever would have been found in this country except under such circumstances. The differences between the two species may be gathered from the following diagnoses:—

Mutinus caninus, *Huds. Fl. Angl.* II., 630.

Whole fungus about 15 cm. high, inodorous. Stem white, or reddish, the walls consisting of one stratum of cavities. Capitulum short ($\frac{1}{5}$-$\frac{1}{6}$ of the whole fungus), acutely digitaliform, flesh coloured, walls of the internal surface foveolate, apex pervious or impervious. Mass of spores dingy olive. Spores 6×4 μ.

On the ground.

PLATE 173. *Fig. a*, in the egg state; *b*, just emerging; *c*, mature fungus; *d*, section of same; *e*, spores $\times$ 400.

Mutinus bambusinus, *Zoll. Syst. Verz.* (1854), *p.* 11.

Whole fungus about 10 cm. high. Stem pallid rubiginous (or rosy), 6-8 mm. thick, the walls containing one stratum of cavities. Capitulum long (half the entire length), acutely conical, dingy purple, externally rugose, impervious at the apex. Mass of spores sooty olive, spores 6×4 μ.

On the ground; originally at the base of bamboo clumps.

PLATE 173. *Fig. f*, emerging from the volva; *g*, further advanced; *h*, *i*, mature fungus; *k*, section of base; *l*, spores $\times$ 400. *Figs. f*, *g*, and *k* from drawings of Javan specimens, by Kurz.; *h* and *i* from British specimens; *fig. h* from drawings by G. Massee.

MEMORABILIA.

Siphoptychium Casparyi.—Having been called to account for our note on this species in Ellis' N. A. Fungi, we have examined it again, and find, as far as our copy is concerned, that the note was correct. There is no columella, and the spores are about half the diameter of those in true specimens sent by Dr. Rex and Dr. Farlow. Why the specimens are wrong in our copy is not for us to explain, and we can only rest upon the fact.

Corticium crocicreas, *B. & C.*—The specimens issued in Ellis' N. A. Fungi, No. 2021, cannot be the true species, the microscopical characters of which are unmistakable and almost unique.—G. M.

Corticium dryinum, *B. & C.*, in Ellis' N. A. Fungi, No. 2020, as far as our specimens go, is *Corticium xanthellum*, B.—G. M.

Hymenochæte spreta, *Peck*, on the faith of the specimens No. 1936 in Ellis' N. A. Fungi is the same as *Hymenochæte unicolor*, Berk. & Curt., in Herb. Berkeley, from Cuba.

Reticularia maxima of Fuckel's Fungi Rhenani, No. 1473, is *Amaurochæte atra* (A. & S.).

Tilmadoche columbina (*Berk.*), in Ellis' N. A. Fungi, No. 2087, is quite distinct from the type specimen of *Didymium columbinum*, B. & C., in Herb. Berkeley, No. 10767.—G. M.

Badhamia hyalina, *P.*, in Ellis' N. A. Fungi, No. 1214, is the same as *Badhamia papaveracea*, Berk. & Rav.—G. M.

Crinula paradoxa, *B. & Curt.*—This is evidently not a fungus at all, but morbid cells, allied to *Erineum*.—G. M.

Sylloge Algarum.—Dr. J. B. de Toni has issued a prospectus of a proposed "Sylloge Algarum," similar in style and scope to the "Sylloge Fungorum" of Prof. Saccardo. He desires the names of subscribers, at the same price of one franc per sheet, addressed to Doct. J. B. de Toni, S. Moise, 1480, Venise (Italie).

Benthall's Drying Paper.—Those who attempt to dry and preserve sections of the fleshy Fungi know how desirable it is to obtain a good and thoroughly absorbent drying paper. As far as our experience extends we know of none which can surpass or compete successfully with Benthall's Drying Paper, now supplied by the publishers of the "Journal of Botany," West, Newman, and Co., of Hatton Garden. The extra thick quality is so durable that it may be used over and over again for years.

SACCARDO SYLLOGE—HYPHOMYCETES.

As we have been unable to trace the following species in the Index to Vol. IV. of the "Sylloge," we direct attention to them in order that they may be incorporated in the next "Appendix."

Cercospora adoxæ, *Roum. Fungi Gall.* No. 1873.
Cercospora doronici, *Pass. in Roum. F. Gall.* 1873.
Cercospora grisea, *C. & E. Grevillea* v., p. 49.
Cercospora rhæi, *Grog. in Roum. F. Gall.* 2775.
Cercospora Therryana, *Roum. F. Gall.* 2264.
Cercospora calthæ, *Cooke.*
Cercospora longissima, *Cooke & Ellis.*
Heterosporium maculatum, *Klotsch. in Herb. Kew.*
Dendryphium quadriseptatum, *Cooke.*
Sporidesmium vermiforme, *Riess. Fckl. F. Rhen.* 76.
Sporidesmium macluræ, *Thum. Myc. Univ.* 2074.
Coniothecium anisoporum, *Mont. Ann. Sci. Nat.*, 1849, 57.
Coniothecium subglobosum, *Cke.*
Stemphylium fuscescens. *Rabh. F. Eur.* 1174.
Stemphylium polymorphum, *Corda Ic.* i., f. 119.
Macrosporium abutilonis, *Pass. in Speg. Dec. M. It.* 58.
Macrosporium canificans, *Thum. Myc. An.* 2280.
Macrosporium chelidonii, *Rabh. Unio. Itin.* xxxvii.
Macrosporium cæspitulosum, *Rabh. Unio. Itin.* xxxii.
Macrosporium elegantissimum, *Rabh. Unio. Itin.* xxxv.
Macrosporium oleandri, *Rabh. Unio. Itin.* xxvii.
Macrosporium spaniotrichum, *Rabh. Unio. Itin.* xxix.
Macrosporium gramineum, *Cooke in Rav. Amer. Ex.* 606.
Macrosporium Ravenelii, *Thum. Myc. Unio.* 2071.
Macrosporium rubi, *Ellis in N. Am. Fun.* 544.
Macrosporium scirpi, *Lasch. in Roum. F. Gall.* 1994.
Macrosporium Zimmermanni, *Roum. F. Gall.* 396.
Gonytrichum fulvum, *Ellis N. Am. Fungi* 657.
Dicoccum pulchrum, *Thum. Myc. Univ.* 1878.
Steirochæte solani, *Casp. in Klot. Hb. Myc.* 1980.
Sporodum asperum, *Ces. in Rabh. F. Eur.* 785.
Conoplea olivacea, *Pers. Syn. Fung.* 234.
Conoplea Eryngii, *Pers. Myc. Eur.* i., 11.
Circinotrichum murinum, *Desm. Crypt. Ex.* ii., 5.
Gyrothrix pannosa, *Ces. in Klot. Hb. Myc.* 273.
Coniosporium arnicæ, *Libert Exs.* 382.
Coniosporium circinans, *Fr. Sys. Myc.* iii., 257.
Cladosporium cæspiticium, *Rabh. F. Eur.* 579.
Cladosporium chætomium, *Cke.*
Cladosporium diaphanum, *Thum. Myc. Un.* 1868.
Cladosporium dracænatum, *Thum. Myc. Un.* 1869.
Cladosporium gleditschiæ, *Cke. in Rav. Amer. Exs.* 297.

Cladosporium microporum, *Rabh. Unio. Itin.* xlii.
Cladosporium obtectum, *Rabh. Unio. Itin.* xxxvi.
Cladosporium pelliculosum, *B. & C.*
Cladosporium subnodosum, *Cke. in Rav. Amer. Ex.* 294.
Cladotrichum simplex, *Cke.*
Clasterosporium subulatum, *C. & Peck.*
Clasterosporium herculeum, *Ellis N. A. F.* 542.
Helminthosporium avenaceum, *Curt.*
Helminthosporium chyocarpum, *Ca. Fckl. F. R.* 1628.
Helminthosporium collabendum, *Cke.*
Helminthosporium gramineum, *Rabh. Hb. Myc.* 332.
Helminthosporium Libertianum, *Roum. F. Gall.* 2894.
Helminthosporium minimum, *Cke.*
Helminthosporium palmetto, *Gerard.*
Helminthosporium resinaceum, *Cke.*
Helminthosporium reticulatum, *Cke. F. Britt.* i., 360.
Helminthosporium congestum, *B. & C.*
Ramularia apiospora, *Speg. Dec. Myc. Ital.* 105.
Fusidium foliorum, *West, v.* Lavandulæ, *Thum. F. Austr.* 887.
Fusidium stachydis, *Pass. in Thum. Myc. Un.* 1565.
Ramularia verbasci, *Fckl. Thum. F. Aust.* 1176.
Ramularia salviæ, *Roum. F. Gall.* 1394.
Ramularia stellariæ, *Rabh. F. Eur.* 1466.
Ramularia necans, *Pass. in Thum. Myc. Un.* 1669.
Ramularia montana, *Speg. Dec. Myc. Ital.* 104.
Ramularia loti, *Schrot. in Herb. Thumen.*
Torula opaca, *Cke. in Ellis N. A. Fungi* 759.
Torula salicis, *Fckl. F. Rhen.* 1622.
Verticillium Therryanum, *Roum. F. Gall.* 2432.
Verticillium Vizei, *Berk. in Vize Microjungi* No. 247.
Verticillium puniceum, *Cke. & Ellis.*
Nematogonum simplex, *Bon. Fckl. F. Rhen.* 149.
Dactylium tenellum, *Fr. Sys. Myc.* iii., 415.
Dactylium tenuissimum, *Berk. Roum. F. Gall.* 3198.
Botrytis brunneola, *Rabh. Hb. Myc.* 771.
Botrytis cubensis, *B. & C.*
Botrytis sonchicola, *Rabh. Hb. Myc.* 175.
Botrytis atrofumosa, *C. & E.*
Sepedonium armeniacum, *B. & C.*
Sporotrichum resinæ, *Fr.*
Sporotrichum papyraceum, *Fckl. F. Rhen.* 2109.
Sporotrichum nitens (*Link.*), *Desm. Crypt. Ex.* 1841.
Sporotrichum foliicolum, *Link.*
Sporotrichum fallax, *Libert Crypt. Exs.* 187.
Myxonema assimile (*Corda*), *Rabh. F. Eur.* 280.
Fusidium leptospermum, *Pass. in Speg. Dec. M. I.* 54.
Fusidium knautii, *Thum.*
Fusidium vaccinii, *Fckl. F. Rhen.* 220, 221.
Fusidium thalictri, *Thum. in Herb. Thumen.*

Fusidium salicis, *Fckl. Symb. Myc.* 370.
Monilia quadrifida, *Pers. Myc. Eur.* No. 11.
Monilia Libertiana, *Roum. F. Gall.* 2887.
Cylindrium minutissimum, *Rabh. Unio. Itin.* xxiv.
Oidium farinosum, *Cke. Grev.* xvi., 10.
Oidium radiosum, *Libert Crypt. Exs.* 285.
Oidium cratægi, *Grog. in Roum. F. Gall.* 881.
Oidium cydoniæ, *Pass. in Thum. Myc. Univ.* 1667.
Oidium fusisporioides, *Fr. Sys. Myc.* iii., 431.
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Oidium obtusum, *Thum. Myc. Univ.* 289.
Oidium orobi, *Thum. F. Austr.* 539.
Oidium euphorbiæ, *Thum.*
Oidium succisæ, *Karl. Rabh. F. Eur.* 791.
Haplotrichum buxi (*Lib.*), *Roum. F. Gall.* 1446.
Aspergillus sulphureus, *Desm. Crypt. Exs.* 554.
Aspergillus nigriceps, *B. & C.*
Sterigmatocystis agaricini, *Speg. MSS.*
Haplaria Ellisii, *Cke.*

The following also are open to correction:—

Torula ovalispora, *Berk.*, is a true *Torula.*
Heterosporium echinulatum, *Berk.*, grows upon Monocotyledons, and is distinct from *H. exasperatum.*
1721 Cladosporium pallidum, *B. & C.* = Cercospora.

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A QUARTERLY RECORD OF CRYPTOGAMIC BOTANY AND ITS LITERATURE.

SYNOPSIS PYRENOMYCETUM.

(*Continued from Vol.* XVI., *p.* 92.)

Fam. 11. LOPHIOSTOMACEÆ. Perithecia subsuperficialia, ostioli compresso, plus minusve lato, rimoso.

GEN. 1. **LOPHIOSPHÆRA**, *Trev.* Sporidia oblonga v. fusoidea, hyalina.

A. *Sporidiis uniseptatis, muticis.*

3529. viticola, *Sacc.* ... 5409
3530. querceti, *S. & S.* ... 5407
3531. lignicola, *Sacc.* ... 5408
3532. hysterioides, *Schwz.* 5523
3533. vigheffulensis, *Pass.* 7344
3534. intricata, *Nke.* ... 7518
3535. Beckhausii, *Nke.* 7519
3536. perpusilla, *Sacc.*... 5410
3537. schizostoma, *Mont.* 5406

B. LAMBOTTIELLA. *Sporidiis uniseptatis, appendiculatis.*

3538. pulveracea, *S.* ... 5414
3539. heterostoma, *Ell. & Ev.* 7520
3540. bonariensis, *Speg.* 5413
3541. Fuckelii, *Sacc.* ... 5415
3542. anaxæa, *Sacc.* ... 5411
3543. glacialis, *Rehm.* ... 5412

C. LOPHIOTRICHA. *Peritheciis pilosis, sporidiis uniseptatis.*

3544. viburni, *Rich.* ... 7345

D. LOPHIOTREMA. *Sporidiis 2-pluriseptatis.*

* Sporidiis muticis.

3545. simile, *Nke.* ... 7521
3546. hederæ, *Fckl.* ... 5416
3547. recedens, *Sch. & S.* 7346
3548. duplex, *K.* ... 5417
=*corticivora*, Rehm.
3549. Notarisii, *Nke.* ... 7522
3550. leucosporum, *Nke.* 7523
3551. nucula, *Fr.* ... 5419
3552. Cookei, *Nke.* ... 7524
3553. pallidum, *Ell.* ... 7347
3554. crenatum, *Pers.* ... 5420
3555. loniceræ, *Fab.* ... 5421
3556. cotini, *Fab.* ... 5422
3557. rubidum, *Sacc.* ... 7348
3558. littorale, *Speg.* ... 5423
3559. coryli, *Fab.* ... 5424
3560. glandium, *Fab.* ... 5425
3561. stenogramma, *D. R. & M.* ... 5426
3562. præmorsum, *Lasch.* 5427
3563. hungaricum, *Rehm.* 6178
3564. semiliberum, *Desm.* 5428

3565. culmifragum, *Sp.* 5429
3566. pusillum, *Fckl.* ... 5430
3567. artemisiæ, *Fab.* ... 5431
3568. sexnucleatum, *Cke.* 5432
3569. scrophulariæ, *Peck.* 5433
3570. thymi, *Fab.* ... 5434
3571. vagabundum, *S.*... 5435
3572. emergens, *K.* ... 7349
3573. origani, *Kze.* ... 5436
3574. helichrysi, *Fab.* ... 5437
3575. ampelinum, *Rehm.* 5438
3576. pygmæum, *S.* ... 5439
3577. cadubriæ, *Sp.* ... 5440
3578. alpigenum, *Fckl.* 5441
3579. massarioides, *Sacc.* 5442
3580. spireæ, *Peck.* ... 5443
3581. Thumenianum, *Sp.* 5444
3582. Mollerianum, *Wint.* 7350
3583. socotrense, *Cke., Trans. Roy. Soc. Edin.*, 1888

** Vivianella. *Sporidiis appendiculatis.*

3584. sedi, *Fckl.* ... 5445
3585. affine, *Sp.* ... 5446
3586. cristatum, *Fab.* ... 5447
3587. angustilabrum, *B. & B.* 5448
v. genistarum, *S.*
3588. Winteri, *S.* ... 5449
3589. auctum, *S.* ... 5450

*** Lophionema. *Sporidiis filiformibus, septatis.*

3590. vermisporum, *Ellis* 5552
3591. crenatum, *Schwz.*

Gen. 2. **LOPHIOSTOMA.** Sporidia fusca.

* Lophiella. *Sporidia navicularia.*

3592. cristata, *Pers.* ... 5397

** Schizostoma. *Sporidia bilocularia.*

3593. montellicum, *Sacc.* 5398
3594. vicinum, *S.* ... 5399
3595. vicinissimum, *Sp.* 5400
3596. Bellunense, *Sp.* ... 5401
3597. vicinellum, *S.* ... 5402
3598. tuyutense, *Sp.* ... 5403
3599. pachythele, *B. & Br.* 5404
3600. Schomburgkii, *B.* 5405
3601. microsporum, *Pass.* 7343

*** Genuina. *Sporidia* 3-*pluriseptata.*

A. Eu-lophiostoma.

† *Sporidia triseptata.*

3602. stenostomum, *Ell. & Ev.* 7351
3603. quadrinucleatum, *K.* 5451
3604. rhopaloides, *Sacc.* 5452
3605. Barbeyanum, *S. & R.* 7352
3606. absconditum, *Pass.* 5453
3607. cæspitosum, *Fckl.* 5454
3608. argentinum, *Sp.*... 5455
3609. demissum, *Nke.* ... 7526
3610. dumeti, *Sacc.* ... 5456
3611. cultum, *Nke.* ... 7527
3612. corni, *Pass.* ... 7353
3613. viridarium, *Cke.*... 5457
3614. isomerum, *Nke.* ... 7528
3615. triseptatum, *Peck.* 5458
3616. rubicolum, *Nke.* ... 7529
3617. subcollapsum, *Ell. & Ev.* 7525
3618. maculans, *Fab.* ... 5459
3619. fallax, *Fab.* ... 5460
3620. fallacissimum, *K.* 7354

3621. syringæ, *Fab.* ... 5461
3622. juniperi, *Fab.* ... 5462
3623. Requieni, *Fab.* ... 5463
3624. acervatum, *K.* ... 5464
3625. rhizophilum, *B. & C.* 5465
3626. granulosum, *Cr.* ... 5466
3627. Desmazierii, *S. & S.* 5467
3628. insculptum, *Rehm.* 5468
3629. striatum, *Sacc.* ... 7355
3630. floridanum, *Ell & Ev.* 7356

†† *Sporidia* 4-*vel pluriseptata.*

3631. macrostomoides, *Not.* 5469
3632. perversum, *Not.* 5470 = *quercini*, Rehm.
3633. pseudo macrostomum, *S.* ... 5471 = *Lojkanum*, Rehm.
3634. myriocarpum, *Fckl.* 5418
3635. Fleischakii, *Awd.* (sec. Winter)
3636. oreophilum, *Sp.* ... 5472
3637. pinastri, *Nssl.* ... 5473
3638. turritum, *C. & P.* 5474
3639. prominens, *Peck.* 5475
3640. fibritectum, *B.* ... 5476
3641. simile, *Nke.* ... 5477
3642. subcorticalis, *Fckl.* 5408
3643. ericarum, *Fab.* ... 5478
3644. scelestum, *C. & E.* 5479
3645. macrostomellum, *Ces.* 5480
3646. mendax, *Not.* ... 5481
3647. caulium, *Fr.* ... 5482
3648. centranthi, *Duby.*
3649. vagans, *Fab.* ... 5483
3650. characiæ, *Fab.* ... 5484
3651. Stuartii, *Fab.* ... 5485
3652. arundinis, *Fr.* ... 5486
3653. brachypodii, *Fab.* 5487
3654. crista-galli, *D. & M.* 5488
3655. collinum, *Sp.* ... 5489
3656. berberidis, *Nke.* ... 7530
3657. ligustri, *Nke.* ... 7531
3658. vexans, *Nke.* ... 7532
3659. anisomerum, *Nke.* 7533
3660. galeopsidis, *Nke.* ... 7534
3661. spartii, *Nke.* ... 7535
3662. biforme, *Nke.* ... 7536
3663. galii, *Nke.* ... 7537
3664. dipsaci, *Nke.* ... 7538
3665. prominens, *Nke.* ... 7539
3666. palustre, *Nke.* ... 7540
3667. parvulum, *Nke.* ... 7541
3668. phragmitis, *Nke.* 7543
3669. Sauteri, *Nke.* ... 7543
3670. nigricans, *Nke.* ... 7544
3671. Nitschkei, *Lehm.* 7545
3672. typhæ, *Nke.* ... 7546
3673. commutatum, *Nke.* 7547
3674. ulicis, *Nke.* ... 7548
3675. diaporthe, *Nke.* ... 7549
3676. lappæ, *Nke.* ... 7550

B. Navicella. *Species majores.* Sporidia mutica, pluriseptata.

3677. macrostomum, *Tode* 5490
3678. excipuliforme, *Fr.* 5491
3679. congregatum, *Hark.* 7357
3680. Balsamianum, *Not.* 5492
3681. pileatum, *Tode* ... 5493
3682. Bommerianum, *S. & R.* ... 7358
3683. magnatum, *C. & P.* 5495
3684. dolabriforme, *Fr.* 5494
3685. julii, *Fab.* ... 5496
3686. elegans, *Fab.* ... 5497
3687. salicum, *Fab.* ... 5498
3688. ulmi, *Fab.* ... 5499
3689. Gaudefroyi, *Fab.* 5500
3690. macrosporum, *Sp.* 5501

C. Rostella. *Sporidia appendiculata.*

3691. insidiosum, *Desm.* 5502
3692. gramineum, *S.* ... 5503
3693. intermedium, *S.*... 5504
3694. Niessleanum, *S.*... 5505
3695. menthæ, *Kirch.* ... 5506
3696. roseotinctum, *Ell. & Ev.* 7359
3697. ruscicola, *Fab.* ... 5507
3698. rutæ, *Fab.* ... 5508
3699. silai, *Fab.* ... 5509
3700. cynopis, *Fab.* ... 5510
3701. appendiculatum, *Fckl.* 5511
3702. papillatum, *Pass.* 7360
3703. bicuspidatum, *Cke.* 5512
3704. simillimum, *K.* ... 5513

D. Brigantiella. *Sporidia caudata.*

3705. caudatum, *Fab.* ... 5514
3706. dacryosporum, *Fab.* 5515

E. *Species dubiæ.*

3707. ventricosum, *Pers.* 5516
3708. utriculus, *Reb.* ... 5517
3709. hysterinum, *Wall.* 5518
3710. liberum, *Tode.* ... 5519
3711. cirrhosum, *N.* ... 5520
3712. subrugosum, *Schw.* 5521
3713. truncatum, *Pers.* 5522
3714. thapsi, *Schwz.* ... 5524
3715. variabile, *Schwz.*... 5525
3716. abbreviatum, *Schwz.*... ... 5526

Gen. 3. **LOPHIDIUM**, *Sacc.*—*Sporidia muriformia, fusca.*

3717. tingens, *Ell.* ... 5527
3718. scorpii, *Fab.* ... 5528
3719. cotini, *Fab.* ... 5529
3720. minus, *Ellis* ... 6179
3721. spartii, *Fab.* ... 5530
3722. compressum, *P.*... 5531 = *angustata*, *P.*
3723. pseudo-compressum, *S. & B.* ... 7361
3724. nobile, *S.*... ... 5532
3725. deflectens, *K.* ... 5533
3726. subcompressum, *K.* 5534
3727. graphidosporum, *Anzi.* 5535
3728. ramorum, *Nke.* ... 5536
3729. obtectum, *Peck* ... 5537
3730. gregarium, *Fckl.* 5538
3731. populi, *Fab.* ... 5539
3732. nuculoides, *S.* ... 7362
3733. ambiguum, *Fab.*... 5540
3734. curtum, *Fr.* ... 5541
3735. diminuens, *P.* ... 5542
3736. pachysporum, *S.* 5543
3737. thyridioides, *S. & S.* 5544
3738. psilogrammum, *D. R. & M.* ... 5545
3739. fenestrale, *C. & E.* 5546
3740. fraudulentum, *D. R. & M.* ... 5547
3741. ruborum, *Cr.* ... 5548
3742. aromaticum, *Fab.* 5549
3743. santolinæ, *Fab.* ... 5550
3744. hygrophilum, *S.* ... 5551
3745. brachystomum, *Nke.* 7551
3746. Crouani, *Nke.* ... 7552

NOTES AND QUERIES ON RUSSULÆ.

By M. C. Cooke.*

Apology of some kind seems necessary for the introduction of technical papers at unseasonable times, but opportunity has for the past two years been exceptionally rare for the consideration of

* Paper read at the Woolhope Field Club, Oct. 4, 1888.

technical subjects at the Woolhope Foray, and although dinners and soirées may, in a sense, be degraded from their high office by such an interpolation, it is a deed of necessity which excuses the demoralization.

Opportunities for the discussion, face to face, amongst mycologists of points of difficulty are exceedingly rare, and indeed the present is almost the only chance from year to year of "settling up," so that it is almost too great a sacrifice to expect us to abandon it without a struggle. Into whatever branch of Natural History a person plunges, it is inevitable that the deeper he goes the more subtle will be the difficulties he encounters, and probably, at the same time, the keener will be his sense of the reconciliations which may be effected. Experience is a much more efficient guide than books, but this source of knowledge has no efficiency except for the individual, if driven to isolation, or condemned to a persistent monopoly of the results. It matters not that one has struggled with difficulties for years, until perhaps he sees bright glimpses of light through the darkness, if he is to die and make no sign. Labour will have been useless, save to him, if he fails to communicate to others his hopes and fears, his interpretations of dimly discerned facts, or his suspicions of accepted tradition. This may be received as the best apology which can be offered for an unwelcome intrusion, and, with such a prospect before us, for the succeeding ten minutes we can only advise the uninterested to close their eyes for that brief period, and sink into the oblivion of profound repose. It will be admitted, without proof, that the study of the genus of *Russula*, amongst Fungi of the Mushroom type, is one which has been regarded as about the most difficult. Of course there are difficulties everywhere, especially when no effort is made to surmount them, but the difficulties in the way of the determination of species, with any degree of personal satisfaction, in this peculiar genus must be tried to be appreciated. *Cortinarius* has its difficulties, for example, but they appear to dwindle in the face of those which beset *Russula*. This genus, nearly all the species of which were in the remote past lumped together under the one name of *Agaricus integer*, is remarkable in many particulars, but in none more than in the general sameness of habit, home, and structure, and the great variety of their coloration. None of the Agaricini present more brilliant colours, or in greater variety, and none perhaps less diversity in form. This seems to be an initial difficulty, for if form varies so little, and colour is not to be relied upon, how is determination to be accomplished? It may be affirmed that, at the outset, there is less difficulty in fixing the genus than in almost any other, for the merest tyro is soon able to declare this or that to be a *Russula*, when he would be puzzled over a *Marasmius* or a *Cortinarius*. With a *Russula*, then, pure and simple, there is no difficulty. No one ever encounters a difficulty of that sort, but when you ask "What Russula?" then you are face to face with the "cardinal sin." It is the determination of the species of

Russula that puzzles the best of us. And why? Because of the absence of broad distinctive features which assist so much in other groups. There are no cæspitose species, for all are solitary. There are no lignicolous species, for all are terrestrial. There are no squamose or scaly species, for all are more or less smooth. Hence the characters by which one species may be distinguished from another in other groups are in this reduced to a minimum, so that they have to be supplemented by other and new distinctions which prevail here, but are not recognized, or but faintly elsewhere. Another cause of difficulty, in my mind, exists in the undue limitation of species or varieties. It is of no consequence whether one regards them as species, and another as varieties, the thing needed is a definite isolation of distinct forms, so that any species or individual met with can without difficulty be set in its proper place. The species recognized by Fries may all be good enough species as he understood them, but his diagnoses are often too general, and embrace too much for ordinary use. The average mycologist requires more than the diagnoses of Fries will give. In some instances, perhaps, the species will cover only a reasonable range, such as *Russula fellea*, *Russula sanguinea*, *Russula lutea*, *Russula nigricans*, and *Russula depallens*, with some others, but constantly individuals are met with, such as those named recently as *Russula Barlæ*, *Russula punctata*, *Russula granulosa*, *Russula drimeia*, which would puzzle anyone who attempted to place them under the species of Fries. No alternative exists, as it seems to us, but to increase the number of recognized forms if the identification of *Russulæ* is to be accomplished with anything like success by the average mycologist. Let it not be understood that we advocate an indiscriminate manufacture of new species, we would recommend that only such individuals should be referred to a species as the description will fairly cover, and that forms aberrant from these should be clearly recognized and indicated by definite names.

Here it may be inquired, What are the features to be taken into account in the characterization of species in the genus *Russula?* Perhaps on the answer to this question the gist of the subject depends. There could be no objection to take one of the *diagnoses* of Fries and accept that as sufficient indication of the characters to be recognized. Bear in mind that we state expressly one of the "diagnoses" of Fries, leaving out all question as to the individuals which those diagnoses have hitherto been made to cover, because they have been made to cover at least twenty fairly good species, which have lately been separated, and may possibly include as many more. The characters seem to be the following, as they stand in Fries :—Taste—pileus, form and character (Fries always has excluded colour from the diagnosis of the pileus)—cuticle—margin—stem, without and within—gills—form, attachment and colour—and in some instances odour. Taking first for comment *taste*, and *odour*. It may be urged that these should be regarded

as *accessory*, rather than *principal*, or at least applied with judgment, and not absolutely. Because, there is no more fœtid a species than *R. fœtens* and no species so unmistakable, it remains without dispute that *R. fœtens* would never be confounded by even a young mycologist, without smelling it, to anything else. Within the past ten years we have occasionally had specimens of *R. fœtens* which had no *fœtid* odour (a fact which might be accounted for), but on the contrary were positively fragrant, as strong and as pleasant as the odour of *Agaricus odorus*, from which the odour could not be distinguished. This was corroborated this year in Epping Forest by Mr. Massee, where he remarked the same phenomenon. *Apropos* of odour, we encountered on one occasion a specimen of *Phallus impudicus* from which all the slimy green matter had disappeared, and all that was left was nearly as white as ivory and of a most pleasant odour, reminding one strongly of violets. Exception has been taken to this fact, when the circumstance has been alluded to, and although we have suffered under the imputation of "drawing the long bow" for fifteen years at least (when this experience was encountered), it will perhaps one day be admitted, by those who think they know everything that is possible for Nature to accomplish, that there really was once such a miracle performed as a *Phallus* with the odour of violets, as well as *Russula fœtens* resembling anise.

Odour must, therefore, always have some latitude, more especially those odours, the appreciation of which, like that of female beauty, resides so much in the nose and eyes of the spectator. There is hardly any odour associated with fungi, good, bad, or indifferent, in which more than two persons can be found at the same time to agree. Nearly all will admit the odour, but not the same odour. For example, there is an odour prevalent amongst *Lactarii*. Let anyone put it to the test. No. 1 says "odour of bugs," No. 2 says "fenugrec," No. 3 says "Ligusticum," No. 4 says "empyreumatic," No. 5 says "camphor," No. 6 diluted "asafœtida," and so on through a considerable range of obscure odours, but never more than about two will accord in ascribing it to the same odour. If in odour, so also in taste, even more than odour, there must be catholicity. *Russula rubra* is very acrid, no doubt about it, when in a really prime condition. Then even the most inveterate smoker will confess it a thorough "pick me up" for its pungency. How, then, can we explain the fact that at Breinton some years since, and at Epping Forest this year, a *Russula* precisely identical in all external features, and those of a remarkable character, should to the taste prove as mild and pleasant as a new filbert. It improves the case very little to say that the mild *Russula* was figured by Krombholz, and called *Russula atropurpurea*, which Fries included as a variety of *Russula integra* at one time, and at another hinted it as a mild aberrant *Russula emetica*. Must taste go for nothing? Certainly that is *not* our opinion. But it should hardly supersede every and all other features. Here is a

case in point. Is *Russula atropurpurea* only a mild form of the acrid *Russula rubra*, with which it appears to accord in everything but taste, or are the two to be maintained as *distinct* upon the faith of one sole and single character? Let each be persuaded in his own mind, all we desire to contend for is this, that for the sake of the inexperienced mycologist, both of the present and future, such anomalies should *not* be ignored, but placed upon record, either as forms or varieties. As a general rule the distinctions "mild" and "acrid" hold fairly well both in *Lactarius* and *Russula*, and, we think, are as reasonably permanent as any other character, for absolute permanency is a dream of the past; "slowly acrid," "mild then acrid," will always suffer some interpretation akin to non-recognition, a sort of neutral character, of no intrinsic value. Faint odours and uncertain tastes are valueless, except to mislead, and this implies condemnation of the method adopted by some persons in making it to form part of their characteristic diagnosis of new species that its "odour reminds one of the rose," or "faintly aromatic," or "calling to mind the perfume of melilot." These are all very well to put in a foot note, but they are too volatile and uncertain for a diagnosis, and certainly are out of place in such a genus as *Russula*, where, with the single exception of *Russula fœtens*, decided odours, except the fishy odour associated with decay, are generally conspicuous by their absence.

Unfortunately, throughout *Russula*, spore character is of the most limited value in specific identification. There is such a close similarity that the minute distinction of one or two micromillemetres is practically useless. The common type of a rough sub-globose spore of about 10 μ prevails, seldom, perhaps, completely globose, but seldom exceeding more than 1 to 2 μ in one direction over the other. The occasional occurrence of a species with entirely smooth spores, if confirmed at all ages, would be exceptional, and add to the value of the character.

Colour of gills and spores require more careful consideration than some of us have given to them. The decided gills of *Russula lutea*, *Russula armeniaca*, and *Russula drimeia*, with some others, could not be overlooked, but there are species, several of them, including some forms of *Russula integra*, in which living and vigorous plants show no tinge of yellow when gathered, but after resting all night and drying, the gills and the deposited spores will exhibit too decided an ochraceous tint to be disregarded. It scarcely need be said that we hold no doubt on this point, that the colour of the spores, if a decided colour and not a faint tinge, can never be disregarded. The same species, however similar in other respects, cannot be accepted with white and with ochraceous spores; perhaps each section of the genus, as recognized by Fries, would be much better, for working purposes, if divided, as the *Fragiles* section is divided, into sub-sections *Leucospori* and *Xanthospori*. In passing, it may be urged that it does not follow that because the gills have, or seem to have, a tinge of colour, the spores are necessarily coloured.

There are instances in which the gills are tinted more or less, but the spores are as white as in species which have permanently white gills.

The colour of the pileus deserves some remark. It has been considered hitherto that colour in the pileus is so very variable in this genus that it is absolutely valueless. No doubt this idea originated in the days when all *Russulæ* came under one or two species. Ultimately we venture to think that colour will be accepted to be as permanent in *Russula* as in *Amanita* or *Hygrophorus*—taking "permanent" to mean persistency in the same tones of colour in the different species. Many of the colours are very bright, and in some instances is confined to a thin cuticle, so that decoloration, more than usual, may be looked for, but this is a discharge of colour, and not an alteration of colour. And to a limited extent the turning yellow or the darkening of tints by age, moisture, or decay, would be regarded as natural changes, the original tone being preserved, and not a variation of colouring in the general acceptation of that term.*

Some of the high-coloured and over-coloured figures of *Russula*, in the books of the early part of the present century, helped to keep alive the notion of the very great variability of colour in this genus, whereas the undoubted fact is, that a great deal of the variability existed in the minds of the several authors, and the paint boxes of their artists. No figures of "Champignons" have been so exaggerated and overdone as *Russula;* in fact, many of them are only caricatures. Impossible greens, cœrulean blues, and reds gone mad characterize the majority. There is no more hopeless task than the attempt to classify under their respective species the legion of figures of *Russula*, which have dazzled the world. Illustrating our thesis that coloration in *Russula* is not such an indefinite and intangible thing as some have alleged, we will take one or two of the worst species.

First and foremost, one of the most protean in colour, as understood by Fries, was *Russula fragilis*. Judging from the figures, it is green, green and pink, pink, scarlet, crimson, purple, violet, red-brown, yellow, ochraceous, and white, and perhaps something more. First of all we strike out *green*, as no ingredient, wholly or in

* It was our intention to have remarked upon the loose application sometimes made of the two words "decoloration" and "discoloration," and must do so in a foot note. We would contend that they do not imply the same thing, and should be recognized at their true value. "Discoloration" may be an alteration of colour, from one colour to another, as a purple disc may be discoloured brown, or a pink edge turn foxy, but we contend that this is not "decoloration," which is a process of blanching, or discharge of colour like that which takes place in *Russula depallens*. Hence "discoloration" may be a change of colour, but "decoloration" an absolute loss of colour. It is by a clear definition of terms that something will be done to facilitate study, and even this remark need not have been made, but that some persons who have written books appear to interpret both words alike.

part, of any form of *Russula fragilis*. What it was intended for we do not attempt to determine. *Yellow* is now represented by *Russula citrina* of Gillet. *Violet* by *Russula violascens* of Secretan, the *ochraceous* form, which seems to have been mild, and, therefore, not *Russula fragilis* at all, by *R. fingibilis*, Britz. The *white* is, of course, the *Russula niveus* of Persoon, and may be only an etiolate form, and then we have still left only the different shades of red, which now are held to constitute the species *Russula fragilis*. In its deepest tints it may verge on rosy scarlet, or crimson, but through all gradations of tints the tone remains the same, now and then spotted with bleached places, where exposed to strong light, and as decay commences the blanched cuticle turns yellowish, or foxy, not resulting from mutation of colour, but decay in the cells. Here, then, we have that variable species *Russula fragilis* simply reduced to a red species, subject to blanching and spotting by exposure to light, like as all the other bright species are liable to similar accidental change.

Of *Russula integra* and *Russula alutacea* we will venture to say nothing at present, because up to now our opportunities have been few, and those chiefly in the direction of finding a well-defined limit between two such similar species.

Russula cyanoxantha appears to be one of our commonest species, and *R. heterophylla* one of the most uncommon, if the diagnosis of Fries is to be relied upon, and not tradition. Doubtless *Russula cyanoxantha* does present in its extremes of intensity, and size, strange contrasts, but were the most sceptical to collect all the specimens possible during a whole day, until they numbered at least one hundred good sound specimens, as we have done in this current year, it is doubtful if their mind would ever be troubled with scepticism again in respect of this species. With a pileus from 1½in. to near six inches in size, from the faintest blush of colour to the deepest tints, and yet unity in all such seeming variety. Intrinsically a margin with a rosy tone, more or less sobered with purple, a pale disc, and between the two a dark zone of dull indefinable mixture of neutral green with purple, and that is the type for all the specimens we can meet with of *R. cyanoxantha*. The infinite variety being made up, not of any change of colours or their position, but simply of their greater or less intensity, the part occupied by the median zone being streaked in a radiate manner by darker lines, either quite smooth or palpably rugose.

Some may remark that there is no difficulty in that species, but it is otherwise with *R. heterophylla*. And here it may only be individual opinion, and so must be rated just at what it is worth, but we think two forms of *R. heterophylla* may be recognized, keeping in mind the strict limit imposed by Fries of "Lamellis angustissimis, confertissimis." These two forms, both of which are uncommon, correspond to the *Russula heterophylla*, Fries, for the greenish forms, and *Russula heterophylla*, Bulliard (t. 509, f. O.),

for the brown forms, each characterized by very much crowded and very narrow white gills.

We presume that there always will be, with the most carefully arranged classification of species, instances occurring in the experience of all, of isolated individuals which it is difficult to place. It is a common occurrence, perhaps, with the most experienced, but even in such cases, wherever careful drawings have been kept, time may provide the missing link. As a rule, it is doubtful whether these isolated individuals are worth the labour they entail, because they are mostly isolated, and the result of some accidental variation. Whereas it is with constantly recurring, and reasonably permanent, types that our best time will be spent.

The only other species to which we shall now allude is *R. xerampelina*, not at all a common one, and perhaps sometimes carelessly referred to *R. integra*. As to the colour of the pileus, all the variability seems to be in the intensity of the marginal colour, the disc holds its character of tawny yellow, verging on reddish brown, broken up into little punctiform scales. The marginal tint is purple, with more or less admixture of red or brown, but differing, as in other species, more in the intensity of the colour than in any variation in the elemental colours. There need be no hesitation with such a well defined species, when sufficiently mature to see the characteristic features of the disc, combined with the form and tint of the gills.

Of the coloration of the stem little can be said of any of the species in which it occurs. It is rarely constant, especially where the colour is red; species, such as *R. Queletii*, in which it is purple, are more invariable, and those in which the stem becomes grey, *R. depallens*, *R. ochroleuca*, etc., the stem is at first white, and the grey colour is acquired by age, and is always faint, but indisputable.

Before leaving the stem, it may be pertinent to observe that in the diagnosis of some species considerable emphasis is placed on the rugosity of the stem. It is not infrequent to read that the stem is reticulately rugose. Admitted that it is more strongly marked in some species than in others, yet it appears to us that if a lens is employed, as it often is by an enthusiastic mycologist, he will probably grow sceptical as to whether there is such a thing as a species of *Russula* with a perfectly even stem, free from striæ in all ages and conditions. If so they are, at least, more rare than absolutely rugose stems.

Internal changes of colour, or discoloration of the flesh, seems to be a valuable character, where it assumes a positive and definite tone, and does not bear the impress of caprice, as often appears to be the case in externally coloured stems. *Russula nigricans*, *R. densifolia*, *R. semicrema*, *R. decolorans*, *R. rhytipes*, and some others seem to depend almost for their strongest features on the colour or discoloration of the flesh. This is the most redeeming feature in *R. Du Portii*. It seems to be characteristic of *R. Barlæ*, and also

of a species as yet undescribed, but which we call provisionally *R. ochroviridis*. Whether it takes a positive and definite form in *R. vesca* is not yet determined. It is not so liable to mutation, according to a wet or dry season, as taste or odour, and hence, all things considered, is more reliable.

The colour of the flesh under the cuticle appears to have the confidence of some mycologists who have little or no faith in the external coloration of *Agaricini* at all. This seems rather anomalous, but it may be true. It is generally considered a good test of *R. emetica*, *R. consobrina*, *R. cyanoxantha*, and perhaps to a certain extent of *R. furcata*, as well as *R. cutefracta*. This subcuticular colour is not always the same as that of the cuticle, and then perhaps even more to be trusted, as in *R. cutefracta*, *R. furcata*, and *R. rhytipes*.

Considerable emphasis is often placed upon a separable or adnate cuticle, but we doubt much if this is not relative rather than absolute, and very much fluctuates with a wet or dry season. True, the cuticle may always be raised with much greater facility in some species than in others, and always most freely at the margin. Here is a little work still left for the microscope to determine whether there is in all cases a distinct outer layer of cuticular cells, or whether they are represented in the adnate pellicle by a cell structure continuous with the subcuticular cells. If the distinct cuticular cells are in all cases a superimposed layer, parting away with more or less facility, then the reliance to be placed upon a separable pellicle must be very small, fluctuating according to external circumstances.

Relative again, and not absolute, must be regarded the viscidity of the pellicle. Granted that in some instances it is most decided under any, and almost every, condition of humidity, as we presume it must be in *Russula cruentata*, Quel., where it is said to resemble *Hygrophorus limacinus*, but this is an extreme case. In damp situations, and persistently wet weather, it can be imagined that the cuticle of the species in the section *Rigidæ* will any of them exhibit fragments of grass and leaves adhering to them with some tenacity, as if they had experienced their soft moments. A distinguished and esteemed Woolhopeian not infrequently has been known to experiment on the conversion of a dry cuticle to a viscid one, by damping and pressing fragments of grass thereon, as a trap to catch the unwary. Nevertheless, for all this, the section *Rigidæ* is a good one, and, comparatively, the cuticle is dry, but not absolutely so, especially when young, that persistently damp weather has no influence upon them. Even that most characteristic, and characteristically dry, species *Russula virescens* may be gathered with fragments of grass closely agglutinated to the pileus, and yet the wood nymphs carry no fairy gum pot, for the delusion of corporeal fungus hunters.

Apropos of the cuticle, a curious phenomenon may be observed in two or three species—and we have observed it only in two or

three—in which the cuticle of the pileus is continued for some distance from the margin along the edge of the gills in a coloured line. This may often be seen in *Russula lepida*, especially when the cuticle remains red or pink. This fact is alluded to by Fries ("Mon.," p. 191), where he says:—"Acie vero, præcipue marginem versus, sæpe rubræ ob marginem pilei cum lamellis contiguum, ut etiam in sequente"—that is in *Russula rubra*. Not only in these two species, but also in another, which we have called *R. granulosa*, an ochraceous species, the darker line is continuous from the margin of the pileus along the edge of the gills, for a considerable distance, like a coloured edge. As a sort of collateral evidence this fact may sometimes be useful in determination.

The final reference we have to make to the cuticle is to remind you that the tomentose cuticle is a rarity almost unknown in *Russula*. We have the viscid and comparatively dry cuticle, opaque or shining, bright or dull, but not the really tomentose pileus. There is a near approach to it in *R. punctata*, Gillet, at times, but a kind of pulverulence is the closest approach we commonly obtain to a tomentose cuticle. *Russula amœna*, Quelet, is affirmed to have a pulverulent pileus; and so pulverulent is that of *R. mariæ*, Peck, a North American species, that the red powder comes off on paper, or may be washed into water, to which latter it gives a pink tinge. On the other hand we have a variation from the absolutely smooth pileus, in those species in which the cuticle breaks up into small areolæ, or even into minute adherent granules. The best examples are those of *R. virescens*, *R. cutefracta*, *R. xerampelina*, *R. punctata*, and *R. granulosa*. It may be added that we regard this character as a very strong and useful one, and, for aught we know or believe, constant.

This brings our "Notes and Queries" almost to a close. Any comparison of species, or critical observations on the limits of species, or the direction of their variability, must be postponed to some period when figures of all the British species can be turned to in illustration. As this time is, we hope, not many months distant, the subject may soon be resumed. It will be well worthy of the labour if we can succeed in rendering the *Russulæ* more intelligible, and this we shall still endeavour to accomplish. The number of available characters is greatly reduced in this genus, and we are compelled to fall back on minute distinctions which are little regarded in other groups, but by making good use of our eyes, it may be possible to initiate an improvement.

Our final note must relate to the general classification of the genus. Admitting something like 100 species into the fraternity, it is evident that an order of grouping must be adopted for facility of reference and determination. Fries attempted this by the recognition of five tribes, and no one has yet ventured to supersede them. Take them for all in all, we do not think, with our present knowledge, that any better can be offered; at any rate, no better arrangement has been proposed. The *Compactæ* is the first, and

at the same time the most perfect of the five groups or tribes. This requires no comment. The second, or *Furcatæ*, seems at certain points to melt into the fourth, or *Heterophyllæ*. It requires considerable care sometimes to put them in practice. The third, or *Rigidæ*, should be, and we think is, a natural and satisfactory tribe, although not a large one. Whilst the last, or *Fragiles*, if strictly maintained within the limits of the diagnosis, is a good workable tribe, although we fail to see a good reason for two groups of the yellow-spored forms when one group would answer the purpose. The same division of yellow-spored from white-spored species would be advisable in all the other tribes. A further subdivision of each section, according to some prominent feature, so as to reduce the size of each final group to some six or ten species, would probably be the most complete classification, and the most workable one that could be proposed. This is the only direction in which we imagine that any reform in the classification could be taken.

Some there are who have been rash enough to suggest the amalgamation of *Lactarius* and *Russula* in one large genus. These enthusiasts could hardly be practical men, or they would know that in proportion as you *diminish*, and not *increase* the size of the genus—all other conditions being equal—so do you facilitate its comprehension, and render it more practically applicable.—*Requiescat in pace.*

NEW BRITISH FUNGI.

By M. C. Cooke.

(*Continued from p.* 3.)

Agaricus (Omphalia) chrysophyllus, *Fr. Hym. Eur.* 156.

Pileus submembranaceous, umbilicate, flaccid, flocculose, dusky yellow, when dry hoary tan-colour, margin reflexed, stem hollow, equal, smooth, yellow, gills very decurrent, distant, bright golden egg-colour.—*Fr. Icon. t.* 74, *f.* 1.

On wood. Rothiemurchas (Rev. Dr. Keith).

Pileus about 1½ in. diam.

Agaricus (Naucoria) subglobosus, *Alb. & Schw. Sacc. Syll.* 3406.

Pileus rather fleshy, hemispherical, even, rather viscid, yellowish (about 2 cm. broad), stem thin, becoming hollow, equal, short (1½ in. long), longitudinally striate; gills very broad, nearly free, rhomboidal, convex, ochraceous flesh-colour. Spores sphœroidal ($9 \times 7\ \mu$), pale salmon-colour.

On the ground. Woodman's Glade, Epping.

This seems to be the true species of Alb. & Schw., but the spores can scarcely belong to *Dermini*, but rather to *Hyporrhodii*. North American specimens determined by Berkeley (when dried)

have ferruginous gills and spores, and must belong to a different species. It would be better to retain this as *A.* (*Nolanea*) *subglobosus*, Alb. & Schw., accepting the North American species as *A.* (*Naucoria*) *subglobosus*, Berk. Fries had never seen Alb. & Schw. species.

Agaricus (Hypholoma) felinus, *Pass. F. Parm.* (*nec. Pers.*).

Pileus fleshy-membranaceous, hemispherical then expanded, smooth, hygrophanous; stem fistulose, short, thin, *rather shining*, white, *incrassated at the base*, and white floccose, striate at the apex; gills adnate, white, then fuscous. *A. catarius—Fr. Hym. Eur.* p. 296.

On the ground amongst grass. Kew Gardens, and Forest of Dean.

Gregarious, subcæspitose, ochraceous, pileus scarcely 1 in. diam. Stem about $1\frac{1}{2}$ in. long; spores 6×3 μ.

Lactarius aspideus, *Fr. Hym. Eur.* 424.

Pileus fleshy, convex *gibbous*, then depressed, viscid, without zones, straw colour, girt with a distinct deciduous *tomentose white marginal band*, afterwards quite smooth; gills rather thick, pallid; milk white, *then lilac*.

In swampy places. Harewood, near Leeds (G. M.).

Pileus 2-4 in. diam. Stem 2-3 in. long, $\frac{1}{2}$ in. thick. Spores subglobose, 8-10 μ.

Lactarius utilis, *Weinm. Russ. p.* 43.

Pileus convexo-plane, at length funnel shaped, even, smooth, tan colour; stem hollow, even, of the same colour; gills adnate, crowded, pallid; milk white, mild, then slightly acrid.—*Fr. Hym. Eur.* 425.

On the ground. Warwickshire (J. E. B.).

Pileus 5-8 in. diam. Stem 2-3 in. long, 1 in. thick. Gills 4-5 lines broad. Spores 8-10 μ, almost smooth.

In the specimen found for the first time in Britain the pileus was pale, and rather a dirty ochre, the stem darker, and longitudinally striate, but otherwise in accord with the description.

Lactarius (Russularia) aurantiacus, *Fl. Dan. t.* 1909.

Pileus fleshy, plane, then depressed, even (1-2 in. diam.), without zones, *orange*. Stem stuffed (3 in. long, $\frac{1}{2}$ in. thick), smooth, same colour as the pileus; *gills decurrent*, crowded, from yellowish to ochraceous. Milk white, slowly acrid. Flesh pallid.

On the ground. Fairmead, Epping Forest.

Resembling *L. mitissimis* in colour, but rather brighter and more orange, besides being acrid.

Russula (Rigidæ) atropurpureus, *Krombh. t.* 64, *f.* 5-6.

Large, fleshy, plane, then depressed, dark purple, shining, dry or rather viscid in wet weather, margin quite entire, even; stem straight, solid, stuffed, white, somewhat cylindrical; gills fleshy, often furcate, broad, white, entire. Flesh white, firm, taste mild.

Amongst grass. Epping Forest, and near Hereford.

Referred by Fries to *Russula emetica*, but the persistently mild taste and other points separate it from that species. Pileus 3-4 in. diam., with the appearance of our usual form of *R. rubra*, with which it is easily confounded. It is somewhat doubtful whether it can be regarded as other than a mild variety of that species.

Russula (Furcatæ) ochroviridis, *Cooke.*

Pileus fleshy, flattened then depressed (4 in. or more), at first viscid, polished when dry, with a thin adnate pellicle, ochraceous towards the margin, disc olivaceous or fuliginous ; margin spreading, even, acute ; stem short, thick, 2 in. long, 1 in. thick, reticulately rugulose, white, rarely growing pallid, flesh fuliginous when cut, stuffed, spongy within ; gills attenuated both ways, lanceolate (6 mm. broad in the centre), crowded, many furcate, white, becoming a little dirty white when old. Spores white, subglobose (9×7 μ), faintly granular. Taste mild.

On the ground. Kew, Arboretum, July, 1888.

Resembles *R. ochroleuca* in the rugose stem, but differs in not becoming cinereous, in the dark, dingy olive centre of the pileus, narrow gills, discoloration of the flesh, and the mild taste. In habit it resembles *R. furcata*, but differs in the paler greenish ochre pileus, narrower gills, rugose stem, and discoloured flesh. Differs from *R. æruginea* in the margin not being striate, in the stem being short and not smooth, and in the gills being crowded.

Russula (Furcatæ) maculata, *Quel. Soc. Bot. Fr.*, 1877, *t.* 5, *f.* 8. *Sacc. Syll.* 1804.

Pileus solid, convex, then plane, viscid, reddish flesh-colour, then pallid, then decoloured, spotted with purple or brown, margin undulate, and often darker (3 in. diam.), flesh white, peppery, reminding one of the odour of rose ; stem short, solid, reticulated striate, white or somewhat rosy, then spotted with ochre. Gills attenuate behind, adnate, bifurcate, pallid sulphur, then somewhat peach-colour. Spores 10 μ diam.

In woods. Epping Forest.

Somewhat like *R. depallens*, but peppery, and without a grey stem, but with yellow gills.

Russula (Fragiles) granulosa, *Cooke.*

Acrid. Pileus convex, plane, then depressed or infundibuliform (2-3 in. diam.), at first viscid, ochraceous yellow, disc darker, breaking up into minute granules, margin even or faintly striate when old. Stem 2-3 in. long, $\frac{1}{2}$-1 in. thick), minutely granular or mealy throughout, granules snow-white at the apex, fuscous below, internally white, spongy ; gills rather crowded, somewhat attenuated behind, nearly free, equal, rarely furcate, white ; spores rough, subglobose, 12 μ diam., apiculate, white.

On the ground, under trees. Arboretum, Kew.

Habit nearly that of *R. ochroleuca*, which it also resembles in colour, but differing in the darker and minutely granular disc as well as the mealy stem, which is not at all grey ; the cuticle of the pileus is continuous at the margin for some distance along the edge

of the gills. Altogether distinct from all the ochraceous species, in many points agreeing with the section *Rigidæ*, but decidedly viscid when moist, possibly only a variety of *R. ochroleuca*.

Russula (Fragiles) puellaris, *Fr. Hym. Eur.* 452.

Pileus, except the disc, *membranaceous*, conically convex, then flattened or depressed, striate to the margin and tuberculose (1-1½ in. diam.), livid purplish, becoming yellowish, *disc brown*, always darker, stem soon hollow (1-1½ in. long), white, becoming yellowish ; gills attenuated behind, adnate, thin, crowded, *naked*, white, then pallid yellow.

On waysides, in woods, etc. Morpeth (C. H. Sp. Perceval, Esq.).

var. **intensior.** Pileus darker, nearly the same size, deep purple, nearly black at the disc, stem and gills as above.

In the same places.

The stem has a tendency to become thickened at the base, and turns yellowish where touched.

Russula (Fragiles) roseipes, *Secr. Myc. No.* 483.

Pileus fleshy, margin thin, convex, then flattened and depressed, viscid, soon dry, rosy flesh colour, rosy orange, or rosy with a tinge of ochre, at first spotted with whitish, at length blanched, margin shortly tuberculate, striate (2-3 in. diam.), gills rather crowded, equal, some dimidiate or furcate, furcate behind and rounded, free, rather distant, sometimes with an adnate tooth, ventricose, whitish, then ochraceous egg-yellow, connected by veins ; stem stuffed, lacunose, white, here and there sprinkled with a rosy meal (2 in. long, 8-15 mm. thick), flesh whitish, then rather yellowish, taste and odour pleasant, spores globose, echinulate, ochraceous, 8-10 μ.

In woods. Morpeth (C. H. S. Perceval, Esq.).

Russula (Fragiles) pulchralis, *Britz. Sudb. Russ. f.* 13.

Pileus viscid, thin, convex, then flattened and depressed (2 in. diam.), circumference ochraceous, centre spotted with red or purple, margin thin, deeply striate and often split. Stem equal, ventricose, or thickened at the base, fragile, white ; gills broad, distant, rather thick, whitish, then ochraceous yellow. Spores nearly globose, 9×8 μ.

In woods. Near Bristol (C. Bucknall).

It is dangerous to attempt an identification of Britzelmayer's species from his imperfect descriptions and crude figures, but in this instance it appears to be correct, although Saccardo places this species (No. 1,813) in the section *Rigidæ*, whereas it evidently belongs to *Fragiles*, according to the evidence afforded by the figure and description, near to *R. nitida*.

Scolecotrichum uniseptatum (*B. & C.*) = Cladotrichum, *Sacc. Syll. No.* 1,797.

Threads dark brown, thin, simple, or rarely shortly branched, not swollen at the joints, septate ; conidia oblong, uniseptate, slightly constricted, rounded at the ends, brown, 10×5 μ.

On dead wood. Epping Forest.

Macrosporium Camelliæ, *C. & Mass.*

Epiphyllous. Spots orbicular or confluent, pallid, with a broad brown margin (1 cm. or more diam.), threads tufted, septate (30-40 μ long), simple, pale olive. Conidia clavate, three septate, then multiseptate and muriform (50-60 × 15-25 μ), attenuated below into a slender pedicel, 30-50 μ long, pale olive.

On living leaves of *Camellia japonica*. Kew.

Tubercularia subpedicellata, *Schw. Sacc. Syll.* 3,038.

On *Syringa vulgaris*. Kew.

Spores 6-7 × 3-4 μ.

Phoma brunneotincta, *B. & C., Sacc. Syll.* 903.

Perithecia semi-immersed, gregarious on brownish or blackish spots, papillate, $\frac{1}{2}$-1 mm. diam., somewhat shining. Sporules straight or curved, hyaline, more or less rounded at the ends, sometimes nucleolate, 14-16 × 3-4 μ, on rather stout sporophores, 35-40 μ long.

Inside husks of *Œsculus*. Kew.

NEW EXOTIC FUNGI.

By M. C. Cooke.

(*Continued from p.* 16.)

Dialonectria (Nectriella) gigaspora, *Cke. & Mass.*

Gregaria vel sparsa. Peritheciis minutis, aurantiis, pyriformibus vel ellipticis, glabris; ostiolo conico. Ascis lanceolatis, 150 μ long, octosporis. Sporidiis elliptico-lanceolatis, continuis, granulosis, hyalinis, 30-33 × 10 μ.

On *Botryosphæria inflata*. Habgalla, Ceylon (542).

Botryosphæria inflata, *Cke. & Mass.*

Peritheciis cortice interiore nidulantibus, demum rimoso-erumpentibus, papillatis, glabris, atris, contextu coriaceo; rimis arcte conniventibus, graphideis, flexuosis; ascis clavatis, octosporis. Sporidiis biserialibus, ellipticis, utrinque obtusis, medio inflatis, continuis, hyalinis, 33-35 × 10 μ.

On bark. Habgalla, Ceylon (542).

Dothidea (Coccodea) globulosa, *Cke. & Mass.*

Hypo-epiphylla, globosa, rugulosa, atra, opaca (1-1$\frac{1}{2}$ mm. diam.), loculis peripheris, globosis, minimis; ostiolis obsoletis; ascis clavatis, octosporis, sporidiis inordinatis, oblongis, triseptatis, hyalinis, 25 × 7 μ.

On leaves of *Tasmania aromatica*. Tasmania.

Externally resembling *D. coccodes*, Lev., but different in fruit; analogous to *Bagnisiella*, with triseptate sporidia. According to authentic specimen Leveille's species is a *Dothidea*, with globose stroma, and peripherical cavities, or pseudo-perithecia, and by no means a species of *Physalospora* (Sacc. Syll. No. 1717).

Trabutia eucalypti, *Cke. & Mass.*

Epiphylla; stroma coriacea, suborbicularis (3 mm. diam.), convexo-rugulosa, atra, nitida, peritheciis in stromate innatis protuberantiis, ostiolo minuto pertusis. Ascis cylindrico-clavatis. Sporidiis elliptico-lanceolatis, continuis, hyalinis, 30 × 8-9 μ.

On leaves of *Eucalyptus viminalis, β mannifera.* Tasmania.

Clypeolum zeylanicum, *Cke & Mass.*

Peritheciis sparsis, superficialibus, dimidiato-scutatis, atris, nitidis ($\frac{1}{4}$ mm. diam.), macula nulla, vel macula brunnea indeterminata insidentibus. Ascis clavatis. Sporidiis ellipticis, uniseptatis, hyalinis, 11 × 3 μ.

On coriaceous leaves. Ceylon.

Micropeltis depressa, *Cke & Mass.*

Epiphylla. Perithecio dimidiato, depresso, orbiculari, atro, opaco, centro poro pertuso, ambitu plano (circa $\frac{1}{2}$ mm. diam). Ascis clavatis, substipitatis. Sporidiis lanceolatis, triseptatis, hyalinis, 35-38 × 8-9 μ.

On leaves of *Cola acuminata.* Fernando Po.

Microcera pluriseptata, *Cke. & Mass.*

Exigua, sparsa, pulvinata, aurantia, sessilis, conidiis bacillaribus, utrinque conico-attenuatis, rectis, vel leniter curvulis, ad 11-septatis, hyalinis, 100-120 × 10 μ. Sporophoris filiformibus, ramosis.

On *Calocera glossoides* and on bark. Cordova, Mexico (Salle).

Chætomella furcata, *Cke. & Mass.*

Peritheciis superficialibus, sparsis, subglobosis, astomis, nigris, undique setosis, pilis erectis, sursum bi-vel tri-dichotomis, fuscis; sporulis ovatis, vel subamygdaloideis, pallide fuscis, 10-11 × 8 μ.

On coriaceous leaves. Sikkim.

BRITISH DISCOMYCETES.

Notes and Additions, No. 1.

By William Phillips, F.L.S.

I purpose in this and other contributions to these pages to deal with several species which were not included in the "Manual of British Discomycetes," either from oversight or from some doubt remaining on my mind as to the correct determination of specimens sent to me by correspondents. The evil of species making is one to be anxiously avoided; on the other hand it only adds to confusion when a plant is wrongly-referred to an already described species, and this is sometimes done when an immediate determination is called for. I shall seek the opportunity here of revising such work, as well as recording the occurrence of new species. The awakened interest in this group of fungi will bring to light many plants described by the older authors hitherto overlooked, and while confirming the words of the illustrious Fries that

"England has more numerous and remarkable Discomycetes than Sweden," will place this country on a par with most others in Europe.

Not the least difficult task of those who essay to determine species is that of deciding what their predecessors have done. The scattered sources of information, the scanty specimens in public herbaria, the inadequacy of descriptions—sufficient when the number of species were limited—and the absence of microscopic details, render it next to impossible to be quite sure what plants a given author had before him. To carefully weigh the evidence, and scrupulously compare details, are the only methods of avoiding the needless multiplication of species.

Peziza leucomelas, *Pers.*

Solitary; cup white, stipitate; stem rather thick, interruptedly sulcate; hymenium cinereous approaching black; asci cylindrical; sporidia 8, broadly elliptic, 1-guttulate, smooth, 20×13 μ; paraphysis filiform, clavate at the apices.

Peziza leucomela, Pers. Myc. Eur., p. 219; *Peziza macropus*, Sturm Fl. (in part), No. 31, t. 20, f. d.; *Peziza sulcata*, Fckl. Symb., p. 330.

Exs. Fckl. Fung. Rh., No. 2,085.

On rocky clay bank. Feby.

The cups are 1 to $1\frac{1}{2}$ inches broad, and the same high. It may easily be confounded with *P. acetabulum*, Linn., if regard be not had to the cinereous disc.

Ashton Court, Clifton. Mr. Cedric Bucknall.

Peziza ancilis, *Pers.*

Substipitate, from the fleshy base of the cup being protracted downwards, fragile; externally white, thick branching veins below; hymenium at first concave, becoming nearly plane, and wrinkled, greyish brown or purplish brown; asci cylindrical, narrowed below; sporidia 8, broadly fusiform, with an apiculus at each end, 3-guttulate, brownish, 25-29 × 10-12 μ; paraphyses stout, a little enlarged at the brownish summits, indistinctly septate.

Peziza ancilis, Pers. Myc. Eur. 219; Fries Sys. Myc., ii., 42; Cooke Mycog., 371, neither 229 nor 372 Rehm.; *Peziza venosa*, Weberb. Pilz., t. ii., fig. 1.

On wet soil where fir-wood had stood. May, 1888.

Cups 2 to 3 inches broad, 1 to $1\frac{1}{2}$ inch high. Our specimens were 1 to $1\frac{1}{4}$ inches broad, and $\frac{3}{8}$ of an inch high. The remarkable sporidia distinguish this from its British allies.

I am indebted to Prof. James W. H. Trail for specimens of this most interesting species.

Dyce, near Aberdeen, N.B.

Peziza umbrina, *Boud.*

Cæspitose, sessile, large, at first hemispherical then expanded, margin persistently incurved, externally pruinose or granulose,

pale brown; hymenium umber-brown; asci cylindrical, narrowed near the base; sporidia 8, elliptic, asperate, hyaline (18-20 × 9 μ, Cooke), 13-15 × 7 μ; paraphyses filiform, a little enlarged at the summits.

Peziza umbrina, Boud. (not Persoon), in Cooke's Myco., fig. 378.

On charred wood. Sept.

Cups 2 to 3 inches broad. The exterior in the specimens from Scotland were granulose rather than pruinose, and the sporidia were somewhat smaller than Dr. Cooke's measurements, but I have no doubt it is Boudier's species.

Aviemore, N.B. Rev. Dr. Keith. Sept., 1888.

Hymenoscypha uliginosa, *Fries.*

Scattered or gregarious, stipitate or subsessile, watery, waxy, firm; cup somewhat concave, or slightly convex, pallid white, or from yellow to ochrey, when dry dark testaceous, or sub-ferruginous, frequently flexuous and umbilicate; stem becoming livid-pallid, or pallid, hollow; asci cylindraceo-clavate; sporidia 8, oblong-elliptic, often provided with two minute apical guttula, 7-14 × 3-4 μ; paraphyses filiform, stout, slightly enlarged above.

Peziza uliginosa, Fr. Sys. Myc., ii., p. 138; Karst. Pez. & Ascob., p. 35, and Monogr. Pez., p. 149; Nyl. Obs., p. 48; *Helotium uliginosum*, Karst. Myco. Fenn., p. 121.

Exs. Karst. Fung. Fenn., 639.

On branches of willow (*Betulus*) in damp places. Nov.

The cups 1 to 2 lines broad, stem half a line to 4 lines high. Mr. Grove's specimens were not so large as Karsten's, from whom the above description is mainly copied. Asci 65-90 × 6-8 μ.

Olton. Mr. W. B. Grove.

Mollisia (Pseudopeziza) Alismatis, *Phil & Trail, Grevillea*, xvi. *p.* 93.

It is probable that this is the same plant as *Peziza Alismatis*, Pers. Myco. Eur., p. 301 = *Patellaria Alismatis*, Fr. Sys. Myc., ii., p. 161; but of this I am uncertain. In any case it is more properly placed in the sub-genus *Pseudopeziza* of *Mollisia*.

Lachnea umbrata, *Fr.* var. **pallida**, *Rehm.*

This differs in colour from the type, being pale tan colour.

Humaria umbrata (Fr.), var. *pallida*, Rehm. Asco., No. 456; Conf. Cooke in Grevillea, vii., p. 57.

On the earth in damp places. May.

Terrington, St. Clement's, Norfolk. Mr. G. Herbert Ward.

Dermatea Pseudoplatani, n. s.

Cæspitose, erumpent, sessile or substipitate; hymenium at first convex, then a little depressed, hoary-white, becoming at times pale yellowish brown; asci broadly clavate; sporidia 8, biseriate,

oblong, or oblong-elliptic, with 3 guttulæ, at length 3-septate, 15-17 × 5-7 μ ; paraphyses clavate at the summits.

On bark of *Acer Pseudoplatanus*. October.

The cups are $\frac{1}{4}$ to $\frac{1}{2}$ a line broad, rarely single, erumpent, and remarkable from their hoary-whiteness. Nearer *D. livida* (B. & Br.) than any other species. It is not *Nodularia acericola* (Peck.), which is also a *Dermatea*, and which has much larger sporidia.

I am indebted to Mr. W. B. Grove, of Birmingham, for this interesting species.

Spark Hill. W. B. Grove, No. 505.

Patellaria Crataegi, n. s.

Solitary or cæspitose, erumpent, hemispherical, then patellate, the prominent margin and exterior brownish-black, whitish within ; hymenium black ; asci cylindrical, narrowed at the base ; sporidia 8, large, narrowly clavate, often ventricose in the centre, faintly coloured, having numerous guttulæ, 30-60 × 5-6 in the broadest part; paraphyses adherent, filiform, clavate, brown, and septate at the apices.

On twigs of *Cratægus*. Jany.

Cups $\frac{1}{4}$ to $\frac{1}{2}$ a line broad ; asci 140-160 × 10. The cups break through the bark singly or in cæspitose clusters of three to five, suggesting *Tympanis*. It is near *Patellaria bacilligera*, Karst.

Corbie Den, Scotland. Professor James W. H. Trail.

Phacidium clematidis, n. s.

Scattered or gregarious, erumpent, orbicular, minute, splitting the epidermis into unequal laciniæ ; hymenium pallid-brown ; asci clavate or clavate-fusiform ; sporidia 8, linear-acute, 5-6 guttulate, straight, 35 × 4 μ ; paraphyses slenderly filiform.

On dead branches of *Clematis*. Autumn.

The cups are $\frac{1}{8}$ to $\frac{1}{4}$ of a line broad ; asci 55-56 × 10. The margin is cut into short, unequal laciniæ, or sometimes only coarsely serrated.

Carlisle. Dr. Carlyle.

Ascomyces aureus (*Pers.*).

Forming in the living leaves concave depressions which are lined with the golden yellow hymenium ; asci oblong-clavate, without stem-cells ; sporidia innumerable, very minute, elliptic, 4-6 × $2\frac{3}{4}$-$3\frac{1}{2}$ μ.

Erineum aureum, Pers. Syn., p. 700 ; *E. populinum*, Schum Enum., ii., p. 446 ; *Taphrina aurea*, Fr. Obs., i., p. 217 ; Robin. Ann. Bot., vi., p. 174 ; *Exoascus Populi*, Thumen. Hedwig., 1874, p. 98 ; *Exoascus aureus*, Sadb. Rabh. Krypt. Flora., vi., p. 3 ; *Ascomyces aureus*, Sacc. Mich., i., p. 62 and p. 516 ; Fung. Ital., fig. 1281 ; Karst. Act. Soc. F. & F. Fenn., ii., No. 6.

Exs. Kunz. Fung. Sel., 169 and 275 ; Rabh. Fung. Europ., 2350 ; Rehm. Asco., 273; Thumen Myco. Univ., 80 and 1461 : Sacc. Myco. Ven., 1500.

On both sides of the leaves of *Populus nigra*. August.

Depressions 2-7 lines broad. Asci 92-105 × 16-25 μ. Size of sporidia, given above, is after Saccardo.

Near Aberdeen. Professor James W. H. Trail.

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Grevillea,

A QUARTERLY RECORD OF CRYPTOGAMIC BOTANY AND ITS LITERATURE.

SYNOPSIS PYRENOMYCETUM.

(*Continued from p.* 28.)

Fam. 12. CERATOSTOMEÆ. Perithecia plerumque immersa, vel quandoque subsuperficialia, rostrata.

Gen. 1. **CERATOSTOMELLA.** Perithecia subcarbonacea. *Sporidia hyalina.*

* Camptosphæria. *Sporidia pyriformia.*

3747. sulphurea, *Fckl.* ... 1566

** Rostratella. *Sporidia subovoidea.*

3748. rostrata, *Fr.* ... 1546
3749. cirrhosa, *P.* ... 1547
3750. microcarpa, *Karst.* 6362
3751. leiocarpa, *S.* ... 1548
3752. ampullasca, *Cke.*... 1549
3753. vestita, *S.* ... 1550
3754. De Baryana, *Auers.* 1551
3755. dubia, *S.* ... 1553
3756. stricta, *Pers.* ... 1555
var. majuscula, *S.*
3757. trichina, *Moug.* ... 1556
3758. dispersa, *Karst.* ... 1557
3759. subpilosa, *Fckl.* ... 1558
3760. multirostrata, *Fckl.* 1559
3761. subsalsa, *Cr.* ... 1560
3762. sphærosperma, *Fckl.* 1561
3763. Stevensoni, *B. & Br.* 1562
3764. canulata, *Pr.* ... 1563
3765. leptorrhyncha, *Mont.* 1565
3766. hystricina, *Cke., Grev.* xi., 109

⁂ Lentomita. *Sporidia didyma.*

3767. longicollis, *Karst.* 6518
3768. brevicollis, *Nssl.*... 2281
3769. cæspitosa, *Nssl.* ... 2282
3770. crassicollis, *Not.*... 2283
3771. Schulzeri, *Pir.* ... 2284
3772. ligneola, *B. & Br.* 2285
3773. stylophora, *B. & Br.* 2286
3774. Auerswaldii, *Fleis.* 2287

⁂ Ceratosphæria. *Sporidia pluriseptata.*

3775. lampadophora, *B. & Br.* 3681
3776. crinigera, *Cke.* ... 3682
3777. pusilla, *Fckl.* ... 3683
3778. rostrata, *Kickx.* ... 3684
3779. fuscella, *Karst.* ... 3685
3780. cinerea, *Quelet* ... 3686
3781. rhenana, *Auers.* ... 1552
3782. subrostrata, *Karst. Exs.*, 859

*** Ophioceras. *Sporidia filiformia, septata.*

3783. dolichostoma, *B. & C.* 4107
3784. Friesii, *Mont.* ... 4108
3785. hystrix, *Ces.* ... 4109
3786. bacillata, *Cke.* ... 4111
3787. macrocarpa, *Sacc.* 4110
3788. longispora, *Ell.* ... 4112
3789. Therryana, *S. & P.* 4113

*** Rhamphoria. *Sporidia muriformia.*

3790. delicatula, *Nsl.* ... 3933.

Gen. 2. **CERATOSTOMA**, *Fr.* Perithecia subcarbonacea. *Sporidia colorata.*

* Eu-ceratostoma. *Sporidia continua.*

3791. Notarisii, *Sacc.* ... 771
3792. querceticolum, *Cr.* 772
3793. caminatum, *C. & E.* 773
3794. avocetta, *C. & E.* 774
3795. brevirostre, *Fr.* ... 775
3796. australe, *Op.* ... 776
3797. rubefaciens, *Pk.* ... 777
3798. jani-collinum, *S. & S.* 778
3799. graphioides, *S.* ... 779
3800. caulincolum, *Fckl.* 780
3801. melanosporoides, *Wint.* ... 6297
3802. Therryanum, *R. & S.* 782
3803. culmicolum, *Sacc.* 783
3804. vitis, *Fckl.* ... 784
3805. barbirostris, *Duf.* 1554
3806. nyssæcola, *B. & C.* 1564
3807. carpophilum, *Ell.* 5914
3808. subulatum, *Ell.* ... 5915
3809. penicillus, *Quelet* 5916
3810. ?foliicolum, *Fckl.* 6298

** *Species incertæ.*

3811. fallax, *Cke. & S.*... 785
3812. piliferum, *Fr.* ... 786
= *dryina*, Pers.
3813. procumbens, *Fckl.* 787
3814. mucronatum, *S.* ... 788
3815. hæmatorhynchum, *Sow.* ... 789
3816. cuspidatum, *Fr.* ... 790
3817. stilbum, *Schum.* ... 791
3818. spina, *Schw.* ... 792
3819. drupivora, *Schwz.* 4342

** Microascus. *Sporidia continua muco involuta.*

3820. longirostris, *Zuk.*... 6299.

** Rhyncostoma. *Sporidia didyma.*

3821. cornigera, *Karst.*... 2764
3822. minuta, *Karst.* ... 2765
3823. exasperans, *Karst.* 2766
3824. Julii, *Fab.* ... 2767
3825. pachyceras, *D. R. & M.* ... 2768
3826. altipeta, *Peck.* ... 2769
3827. badia, *Pr.* ... 2770
3828. conica, *Lev.* ... 2716
3829. tinctum, *Ell. & Ev.* 6620
3830. Beccarianum, *Pass.* 7474

*** / ** Rhyncosphæria. *Sporidia triseptata.*

3831. acuta, *Sacc.* ... 3276
3832. ceratophora, *S. & S.* 3277
3833. longicollis, *Sacc.*... 3278
3834. Cesatiana, *Sacc.* ... 3279
=*Beccariana*, Ces.

*** / *** Ceratosphæria. *Sporidia pleuriseptata.*

3835. æruginosa, *Rehm.* 3688
3836. Sarawacensis, *Ces.* 3689
3837. mycophila, *Wint.* 7057
3838. irpex, *B. & Br.* ... 3384

Gen. 3. **GNOMONIA.** Perithecia submembranacea, subcutaneo erumpentia; ostiolo rostellata; sporidia hyalina.

* Gnomoniella. *Sporidia continua.*

3839. tubiformis, *Tode* ... 1567
3840. amæna, *Nees* ... 1568
var. petiolorum, *Schw.*
3841. avellanæ, *Sch.* ... 1569
3842. spilota, *Lev.* ... 1570
3843. emarginata, *Fckl.* 1571
3844. mirabilis, *Peck.* ... 1572
3845. nervisequia, *Wall.* 1573
3846. fasciculata, *Fckl.*... 1574
3847. lugubris, *Karst.* ... 1575
3848. comari, *Karst.* ... 1576
3849. circinata, *Fckl.* ... 1577
3850. vulgaris, *Ces.* ... 1578
3851. rosæ, *Fckl.* ... 1579
3852. pruni, *Fckl.* ... 1580
3853. perfidiosa, *Karst.*... 1581
3854. angelica, *Fckl.* ... 1582
3855. devexa, *Desm.* ... 1583
3856. curvicolla, *Peck.*... 1584
3857. excentrica, *Cke. & Pk.* ... 1585
3858. amygdalina, *Fckl.* 1586
3859. euphorbiæ, *Fckl.* ... 1587
3860. idæicola, *Karst.* ... 1588
3861. vagans, *Johan.* ... 6363

** Mamiana. *Peritheciis stromaticis.*

3862. fimbriata, *Pers.* ... 1589
3863. coryli, *Batsch.* ... 1590

** / * Ophiognomonia. *Sporidia bacillaria.*

3864. melanostyla, *D.C.* 1591

** / ** Eugnomonia. *Sporidia uniseptata.*

† *Sporidia ovoidea v. oblonga.*

3865. Epilobii, *Fckl.* ... 2196
3866. fenestrans, *Duby*.... 2197
3867. depressula, *Karst.* 2198
3868. tetraspora, *Wint.*... 2199
3869. euphorbiacea, *S. & B.* 6489
3870. rhododendri, *Rehm.* 2200
3871. tithymalina, *S. & B.* 6490
3872. unæqualis, *Auers.* 2201
3873. myricæ, *C. & E.* ... 2202
3874. sesleriæ, *Not.* ... 2203
3875. clavulata, *Ell.* ... 6083
3876. australis, *Winter*... 6492
3877. petiolophila, *Peck.* 6491
3878. magnoliæ, *Ellis, Amer. Nat.*, 1883, p. 318.

†† Closterignomonia. *Sporidia fusoidea.*

3879. setacea, *Pers.* ... 2204
3880. ischnostyla, *Desm.* 2205
3881. inclinata, *Desm.* ... 2206
3882. setiformis, *Pers.* ... 2207
3883. veneta, *Speg.* ... 2208
3884. amæna, *Auers.* ... 2209
3885. ostryæ, *Not.* ... 2210
3886. Arnstadtiensis, *Auers.* ... 2211
3887. suspecta, *Fckl.* ... 2212
3888. lirelliformis, *Pass.* 2213
3889. erythrostoma, *Pers.* 2214
3890. Linneæ, *Auers.* ... 2215
3891. Fleischhakii, *Auers.* 2216
3892. alni, *Plow.* ... 2217
3893. alniella, *Karst.* ... 2218
3894. campylostyla, *Auers.* 2219
3895. leptostyla, *Fr.* ... 2220
3896. errabunda, *Desm.*... 2221
3897. petiolicola, *Fckl.*... 2222
3898. dryadis, *Auers.* ... 2223
3899. cerastis, *Reis.* ... 2224
3900. graphis, *Fckl.* ... 2225
3901. pleurostyla, *Auers.* 2226
3902. sassafras, *Ell. & Ev.* 6493
3903. perversa, *Rehm.* ... 6494
3904. gei, *Pat. & Doas.* 7460

*** *Species dubiæ.*

3905. acicularis, *Wallr.* 2227
3906. curvirostra, *Sow.*... 2228
3907. grossulariæ, *Fr.* ... 2229
3908. ulmea, *Schw.* ... 2230
3909. pruina, *Schw.* ... 4473
3910. ariæ, *Fckl. F. Rhen.* 877
3911. obliqua, *Auers. Pyr. f.* 126
3912. pungens, *Wallr. Comp.* II. 803
3913. curva, *Wallr. in Karst. Exs.* 349

*** Cryptoderis. *Sporidia triseptata.*

† *Ostiolum sublaterale.*

3914. lamprotheca, *Desm.* 3690

†† *Ostiolum subcentrale.*

3915. Chamæmori, *Fr.* ... 3691
3916. riparia, *Nsl.* ... 3692
3917. misella, *Nsl.* ... 3693

FUNGUS FORAYS, 1888.

Hackney Natural History Society, Saturday, Sept. 8th.—The Annual Foray was held as usual in Epping Forest, and although the attendance was small the weather was propitious, and the number of species met with considerably larger than for some years past. The cold summer was, doubtless, adverse to the prolific growth of fungi, yet, for some unaccountable reason, this excursion proved to be eminently successful, as far as species were concerned, although the individuals in each species were comparatively few. The Hawkwood and Burywood side of the Forest did not answer expectations at the beginning of the day, but after-

wards there was no reasonable ground of complaint. It is customary at these Excursions to keep a list of all the species met with and determined throughout the day, which, on previous occasions, have ranged from 60 or 80 to 100. On the present occasion the total attained was 144, of which 20 were new to the records of the Forest, and four of these occurred for the first time in Britain. Of the latter were *Agaricus* (*Naucoria*) *subglobosus*, A. & S., which appears to be rather a *Nolanea* than a *Naucoria*, from the colour and character of the spores; *Russula maculata*, Quelet, although it hardly seems to be a good and distinct species; *Lactarius aurantiacus*, Fr., and *Scolecotrichum uniseptatum*, B. & C. In addition to these *Russula armeniaca*, Cooke, which was first observed in the Forest nearly a month previously, and *Russula* (sub species) *granulosa*, Cooke, were again collected. The usual tea at Fairmead Lodge, an exhibition and examination of the specimens collected, with some explanatory observations by M. C. Cooke, concluded the day.

Woolhope Field Club, Oct. 2 to Oct. 5, 1888.—On this occasion, following the example of last year, two days were spent in the Forest of Dean, with the Speeche House, Coleford, as a centre. Whatever the cause, the anticipations raised by the success of the Hackney Foray in Epping Forest were disappointed, as may be seen from the account in "Gardener's Chronicle" for October 27. As for the fungi, they were few and far between, the oldest excursionist venturing the opinion that it was the worst prospect of a Fungus Foray which the Woolhope Club ever experienced, and this prognostic was ultimately verified. Thursday, being the "Club day," was devoted to a little excursion in the woods and lawns of Holm Lacey, where the bracken flourished in luxurious profusion, but fungi were more scarce than in the Forest of Dean. In the evening, after the inevitable dinner, the usual conversazione at the residence of Mr. Cam was crowded, when two or three papers were read—"On Dr. Bull's Birds of Herefordshire," by H. T. Wharton, M.A., F.Z.S.; "On Spiders," by the Rev. J. E. Vize, M.A.; and "Notes and Queries on Russulæ," by M. C. Cooke (the latter printed in the previous number). The final excursion to Pontrilas, on October 5, was characterized chiefly by the genial hospitality of the host and hostess for the day, but the baskets remained nearly empty, and not a specimen of any special interest or rarity could be found. "The social aspect of the week was a pleasant reminiscence, but the scientific phase undoubtedly a deplorable failure."

Vesey Club, Sutton Coldfield, Saturday, Oct. 6.—The first Foray of this Club in Sutton Park did not exceed two hours, but a number of specimens, chiefly of the commoner species, were collected. In the evening a meeting was held at the Royal Hotel, with the Mayor in the chair, when W. B. Grove, B.A., read a paper on the Esculent fungi of the district, illustrated by specimens on the table and some well-prepared dishes of three or four species

which were placed before the company, and eaten with general satisfaction. The specimens collected during the day supplied the text for some remarks on the discrimination of species by M. C. Cooke, an animated discussion bringing a very pleasant evening to a close. The most interesting fungus exhibited was a specimen of the rare *Lactarius utilis*, Wein., which had been collected in Warwickshire during the previous week by Mr. J. E. Bagnall, A.L.S.

Hampshire Field Club, Oct. 11 and 12, 1888.—Although the crop of fungi was far richer than in the Forest of Dean, it was by no means equal in the New Forest to what it has been in previous years, whilst better than last year. In 1887 only about 106 species were collected and recorded during the two days, but in 1888 no less than 171 species were determined, and of these sixty-eight were species found also in the previous year, whilst thirty-eight of those found in 1887 did not put in an appearance in 1888. The first day's excursion was made in Boldrewood and Knightwood; the second day starting from Lyndhurst Road Station, through fir plantations, following the stream to the Kennels at Minstead. The evening of the first day was devoted to an exhibition of the specimens collected at the Hartley Institution, Southampton, and a demonstration by M. C. Cooke, chiefly confined to edible and poisonous fungi, illustrated by specimens on the table. Some of the most interesting of the species found during the excursions were *Hydnum auriscalpium* in profusion, as well as some very fine specimens of *Agaricus* (*Tricholoma*) *imbricatus, Tremellodon gelatinosum, Lactarius cyathula, Clavaria pistillaris, Clavaria aurea*, etc.

Essex Field Club, Saturday, Oct. 27, 1888.—The weather was all that could be desired, and yet the attendance was below the average of several years. It was at first intended to scour the slopes of Monkswood, but ultimately it was decided to commence at Fairmead, working upwards to Highbeech. The dearth of fungi was remarkable as compared with the same localities six weeks previously. The only additions made to the Forest catalogue were *Agaricus* (*Mycena*) *parabolicus*, Fr.; *Agaricus* (*Stropharia*) *thraustus*, Kalch.; *Polyporus* (*Fomes*) *applanatus*, Fr.; *Polyporus radiatus*, Fr.; *Grandinia granulosa*, Fr.; *Phlebia merismoides*, Fr.; *Corticium atrovireus*, B.; *Clavaria grisea*, Fr.; *Peziza badia*, P.; *Peziza succosa*, B. The specimens were arranged at the close of the day on tables at the "Roebuck," at Buckhurst Hill, and after tea an "ordinary" meeting was held, when the following papers were read: "Notes on the Larger Fungi of Epping Forest," by M. C. Cooke, and "Unsolved Problems in Plant-Life," by G. Massee.

General reports from all parts of the country characterize the present year as remarkably unproductive in fleshy fungi, except for a short period soon after midsummer.

AUSTRALIAN FUNGI.

By M. C. Cooke.

Polyporus (Ovini) tumulosus, *Cke.*

Pileo carnoso (3-4 unc. diam.), firmo, convexo, pallido, squamulis innatis obscurioribus ornato, margine primitus incurvo, carne albo; stipite brevi, crasso, æquali (1-2 unc. long 1 unc. crass) solido, ochraceo, mycelio profuso, albo, spongioso oriundo; tubulis adnatis, vel subdecurrentibus, latis ; poris magnis, inæqualibus, angulatis. Sporis 12 × 4-5 μ pallide olivaceis.

On the ground. Near Brisbane. (*Bailey*, 607.)

" On the hard stony ridges about Brisbane, when trenching the land, large masses of mycelium are often met with. Some of the masses would weigh over a hundredweight. From its consistence one might fancy that a quantity of dough had been buried. My idea has always been that it was the mycelium of some *Boletus*." The specimens sent have some of the mycelium attached. Dr. Bancroft, who collected them, remarks that the natives make use of them for food, " a fact worth recording as so few are eaten by them." The description is drawn up from dried specimens, and no account was forwarded of the colour and appearance when fresh. Closely allied to *Polyporus Hartmanni*, C.

Grandinia glauca, *Cke.*

Subceracea, late effusa, adglutinata, glauca, ambitu determinato, hymenio æquali ; granulis subconicis, æqualibus, minutis, confertis, concoloribus. Sporis 8 × 4 μ.

On naked wood. Brisbane. (*Bailey*, 627.)

Aleurodiscus albidus, *Mass.*

Primum pezizæforme, margine erecto, tomentoso, inflexo, dein explanato-expanso, sæpeque confluenti ; hymenio albo, subpulverulento, in sicco hinc inde rimoso; sporis ellipsoideis 10-12 × 9 μ.

On branches. Brisbane. (*Bailey*, *n.* 620.)

Plants pure white, at first scattered, 2-3 lines in diameter, often becoming confluent and forming irregular patches ; $\frac{1}{2}$-$\frac{3}{4}$ in. across.

Uromyces diploglottidis, *Cke. & Mass.*

Epiphylla. Soris sparsis, convexis, minutis, diu tectis, demum fissuratis, pallide fuscis, maculis orbicularibus virentibus insidentibus. Teleutosporis ellipticis, apice obtuse acuminato, basi in stipitem brevi attenuato. Episporio hyalino, crasso, plasmate granuloso, pallido, 50-60 × 20-30 μ.

On fading leaves of *Diploglottis*. Brisbane. (*Bailey*, 626.)

Phoma plagia, *Cke. & Mass.*

Maculis determinatis, glaucescentibus, ellipticis vel confluentibus, margine lineato circumscripto; peritheciis minutissimis, atris, emergentibus ; sporulis ellipticis, binucleatis, hyalinis, 8-9 × 5 μ.

On palm leaves. Daintree River. (*Bailey*, 464.)

Phoma diploglottidis, *Cke. & Mass.*

Hypophylla, gregaria. Peritheciis semi-immersis, atris, minutis, papillatis; sporulis arcte amygdalæformibus, binucleatis, hyalinis, 10-11 × 4-5 μ.

On fading leaves of *Diploglottis*. Brisbane. (*Bailey*, 626.)

Phyllachora alpiniæ, *Cke. & Mass.*

Maculis ex fusco piceo-nigris, elongatis, linearibus vel lanceolatis, hinc illic confluentibus; stromatibus atris, nitentibus, rugulosis, nunc orbicularibus nunc confluentibus. Ascis clavato-stipitatis. Sporidiis ellipticis, continuis, hyalinis, biserialibus 11-14 × 5-6 μ.

On fading leaves of *Alpinia cærulea*. Brisbane. (*Bailey*, 623.)

NEW BRITISH FUNGI.

By M. C. Cooke.

(*Continued from p.* 42.)

Phoma tingens, *Cke. & Mass.*

Scattered. Perithecia minute, subglobose, black, papillate, seated on bright red spots, which penetrate the matrix; sporules oval, 3-4 × 1½ μ, hyaline.

On stems of *Delphinium elatum*. Kew, Jan., 1889.

Phoma Jacquiniana, *Cke. & Mass.*

Caulicolous. Perithecia gregarious, minute, black, papillate, elevating and at length piercing the cuticle, sporules elliptical, nucleate at each end, hyaline, 15 × 5 μ.

On stems of *Delphinium Jacquinianum*. Kew, Jan., 1889.

Phoma gibberoidea, *Cke. & Mass.*

Caulicolous. Perithecia scattered, membranaceous, rather soft and gelatinous, large, subglobose, then depressed, pierced at the apex, erumpent, dark brown, sporules profuse, cylindrical, obtuse, straight or slightly curved, hyaline, 14 × 2 μ on short sporophores.

On stems of *Delphinium elatum*. Kew, Jan., 1889.

Physarum Carlylei, *Massee.*

Sporangia stipitate, globose, orange-vermilion, minutely furfuraceous; stem about equal in length to diameter of sporangium, thick, rugulose, vermilion, expanding downwards into a small, wrinkled hypothallus; capillitium threads thin, yellow, forming a dense net, swollen at the angles, and there containing orange-coloured granules of lime; columella absent; spores globose, smooth, dirty violet, 7-8 μ diameter.

On rotten wood. Carlisle (Dr. Carlyle).

A very distinct species, sporangia 1·5-2 mm. high, scattered singly or in groups of two or three. Most nearly related to *Physarum rubiginosum*, Fr., but readily distinguished by the smaller spores, and the scattered, stipitate sporangia.

BRITISH PYRENOMYCETES.

By G. Massee.

(*Continued from p.* 6.)

Fam. II. LOPHIOSTOMACEÆ. Perithecia subsuperficial, ostiolum compressed, more or less broad, rimose.

Gen. 1. **LOPHIOSPHÆRA**, *Trev.* Sporidia oblong or fusiform, hyaline.

Lophiotrema. *Sporidia* 2, *or many septate.*

L. hederæ, *Fckl.*, *Sacc. Syll.* 5416.
On ivy. Exmouth, Eastbourne.
L. nucula, *Fr.*, *Sacc. Syll.* 5419 ; *Hdbk.* 2540.
On oak bark.
L. præmorsum, *Lasch.*, *Sacc. Syll.* 5427; *Hdbk.* 2545 (= *Loph. Jerdoni*, B. & Br.).
On *Rubus idæus* and elm. Mossburnford, King's Cliffe, East Bergholt.
L. semiliberum, *Desm.*, *Sacc. Syll.* 5428; *Hdbk.* 2548.
On culms of reeds and grasses.
L. sexnucleatum, *Cke.*, *Sacc. Syll.* 5432 ; *Hdbk.* 2543.
On nettle stems. Shere, near Guildford; North Wootton.

Vivianella. *Sporidia appendiculate.*

L. augustilabrum, *B. & Br.*, *Sacc. Syll.* 5448; *Hdbk.* 2542.
On gorse, elm, and ash. Leicester, Forden, Shere, North Runcton, Lynn.

Gen 2. **LOPHIOSTOMA.** Sporidia coloured.

* Lophiella. *Sporidia boat-shaped.*

L. cristata, *Pers.*, *Sacc. Syll.* 5397.
On twigs and branches. Wothorpe, Twycross.

** Genuina. *Sporidia* 3, *or many septate.*

A. Eu-lophiostoma. *Perithecia rather small.*

† *Sporidia* 3 *septate.*

L. quadrinucleatum, *K.*, *Sacc. Syll.* 5451.
On *Rhamnus frangula*. North Wootton.
L. viridarium, *Cooke*, *Sacc. Syll.* 5457 ; *Hdbk.* 2539.
On decorticated twigs of maple. Shere.

†† *Sporidia multiseptate.*

L. fibritectum, *B.*, *Sacc. Syll.* 5476 ; *Hdbk.* 2541.
On bleached larch planks. King's Cliffe.

L. caulium, *Fr.*, *Sacc. Syll.* 5452; *Hdbk.* 2546.
On dead stems of *Epilobium hirsutum*, etc. Shere.
L. arundinis, *Fr.*, *Sacc. Syll.* 5486; *Hdbk.* 2547.
On reeds and grasses. Shere, Chiselhurst.

B. Navicella. *Perithecia large.*

L. macrostomum, *Tode*, *Sacc. Syll.* 5490; *Hdbk.* 2537.
On sycamore and holly. King's Cliffe, East Bergholt, Twycross, Shere, Kidbrooke, Orton Wood, Leicester; Forres, N.B.
L. excipuliforme, *Fr.*, *Sacc. Syll.* 5491; *Hdbk.* 2544.
On bark, wood, and furze. King's Cliffe, Sibbertoft.

C. Rostella. *Sporidia appendiculate.*

L. bicuspidatum, *Cke.*, *Sacc. Syll.* 5512; *Hdbk.* 2538.
On decorticated twigs. Shere, Darenth, Leatherhead, King's Lynn.

Gen. 3. **LOPHIDIUM**, *Sacc.* Sporidia muriform, coloured.

L. compressum, *P.*, *Sacc. Syll.* 5531 (=*L. angustatum*, Fckl.).
On willow. King's Lynn, Northampton.

MEMORABILIA.

Lycoperdon Missouriense, *Trelease. Trans. St. Louis Acad. Sci., Dec.*, 1887.—This undoubtedly is the same as Lycoperdon lilacinum. *B. & M.*

Polyporus salignus, *Fries.*—There is every probability that the *Polyporus obducens*, Fr., is a resupinate form of the above. Both have been found together, both are stratose, and have identical spores. A form of *P. salignus*, in Herb. Berk., is placed with, and referred to, *P. zonatus*, Fries., which latter should not be stratose.

Lophodermium Petersii, *B. & C.*, *Sacc. Syll.* 5822. On branches of *Cupressus* and *Juniperus*. Perithecia 1-1½ mm. Sporidia 60 × 2 μ. This is identical with *Colpoma juniperina*, Cooke & Peck.

Colpoma Azaleæ, *Schw.*—Perithecia 1-3 mm. Sporidia 90 × 2 μ.

Hysterium carmichaelianum, *Sacc. Syll.*, 5670.—Sporidia 30-32 × 18 μ, otherwise the same as in *H. repandum*, Blox. (Sacc. 5566), hence a species of *Farlowia*.

Hysterium insidens, *Schwz.* (*Sacc. Syll.* 5762).—Sporidia in authentic specimen from Schweinitz are *not* muriform, but 7-9 septate, with the third or fourth joint swollen, 45-50 × 15 μ,

scarcely distinct from *H. Berengeri*, Sacc., but certainly belonging to *Hysterium*.

Botryodiplodia acinosa, *Fr.*—Specimens of *Sphæria acinosa* from Moug. & Nestl. Exs., No. 769, and apparently direct from Mougeot, are respectively a *Botryodiplodia*. Sporules scarcely constricted, dark brown, 16-20 × 8-10 μ, very variable in size.

Agaricus (Lepiota) echinodermatis, *Cke. & Mass. in Grevillea* xvi., *p.* 30.—On comparison this does not appear to be specifically distinct from *A* (*Lepiota*) *asprata*, Berk.

Hemiarcyria leiocarpa, *Cke., Myxos U.S., p.* 405, *Sacc. Syll.* 1519.—In Saccardo this is stated to be a species of Rostafinski's (Mon. p. 267), but its publication as a species was subsequent to the Monograph by Rostafinski, and consequently could have no mention in that work.

Trichia abrupta, *Cke., Myxos U.S., p.* 404, *Sacc. Syll.* 1511. —No description given in the "Sylloge," whereas a full diagnosis was published as above.

Trichia affinis, *D'By., Sacc. Syll.* 1499.—The character of the spores, in so far as they differ from those of its allies in the bands being punctate, is not mentioned in the "Sylloge" at all; and further, the threads are not "connected in a net."

Clavaria velutina, *Ell. & Ev., N. Amer. Fungi*, No. 2024.— This is *Lachnocladium semi-vestitum*, B. & C. Spores globose, colourless, 4-5 μ; Berkeley's type is from New Jersey.

Clavaria fragrans, *Ell. & Ev., N. A. F.* 2023.—This is *Lachnocladium Micheneri*, B. & C.

SOME EXOTIC FUNGI.

By M. C. Cooke.

Marasmius sanguineus, *Cke. & Massee.*

Pileo convexo, membranaceo, sanguineo (1-1½ cm. diam.) glabro, lævi; stipite elongato, glabro, pallido (4 cm. long), lamellis paucis, distantissimis, ventricosis, adnexis, pileo concoloribus.

On dead leaves. Laion Forest, Dominica. West Indian Exploration Committee (*Ramage*).

Allied to *Marasmius rhabarbarinus*, Berk.

Polyporus (Petalodes) cervicornis, *Cooke.*

Pileo carnoso-lento, glabro, e basi stipitiformi brevi ramoso-extenso, tota albido, segmentis planis, digitato-furcatis, uni- vel bi-rarius tri-dichotomis, apicibus acutis; poris brevibus, rotundatis, minutis, æqualibus.

On logs. Forest St. Lucia.

A singular species, resembling a *Clavaria* in form, about 3 inches in length, deeply cut into segments, which do not exceed ½ cm. in width, with the hymenium on the under surface.

Bovista asterospora, *Massee.*

Peridio globoso, papyraceo, ochraceo, sursum glabro, deorsum scrobiculato, vertice rumpente; floccis hyalinis, parce ramulosis, 6-7 μ cr., sporis globosis, ecaudatis, dense majusculeque spinulosis, umbrinis, 7-8 μ diam.

On the ground. Dominica (*Ramage*).

From half to two-thirds of an inch diameter, sometimes furnished with a long, slender root. Well marked by the scrobiculate base of the peridium, colourless threads, and densely spinulose spores.

Lycoperdon Dominicensis, *Massee.*

Peridio subgloboso, depresso, sæpius in basim stipitiformem attenuato, verrucis spinuliformibus, vel pyramidatis, demum deciduis obsito; basi sterili distincta; floccis parce ramulosis, hyalinis, 5-6 μ cr., sporis globosis, glabris, longe pedicellatis, e fusco dilute purpureis, 5-6 μ diam., pedicello 20-25 × 1·5 hyalino.

On the ground. Dominica (*Ramage*).

Peridium half to two-thirds of an inch across. Remarkable in having the spores furnished with long persistent pedicels as in the allied genus, *Bovista.*

Lepidoderma stellatum, *Massee.*

Peridiis sphæricis, stipitatis, subtus umbilicatis, nigro-fuscis, squamis albis variegatis, majusculis, maturitate stellatim ruptis; stipite crassiusculo, erecto, striatulo, albo; columella hemispherica vel subclavata, albido-flava; floccis capillitii tenerrimis, flexuosis, incoloribus; sporis lævibus, violaceis, 10-12 μ diam.

On rotten wood. Dominica (*Ramage*).

A very fine and distinct species, scattered or gregarious, 2·5-3·5 mm. high. When young the sporangia are pure white, the outer coat eventually becoming broken up into large scales. When mature the sporangia split nearly to the base into 4-6 irregular, acute segments.

SACCARDO'S SYLLOGE, VOL. VI.

This volume comprises the residue of the *Hymenomycetes* not already included in Vol. v., as the *Polyporei*, *Hydnei*, *Thelephorei*, *Clavariei*, and *Tremellini*. As far as a hasty and cursory glance can impress anyone, the conclusion must be satisfactory. Nothing novel or sensational in classification has been attempted, and if all the innumerable species, the diagnoses of which have hitherto been scattered in all directions, have been carefully collected into one volume enough has been done to merit the thanks of all work-

ing mycologists. Some omissions will, doubtless, be discovered, since we have already failed to trace some of the species described in Schweinitz's "Synopsis Carolinensis," but let us hope that the omissions are but few. It would be absurd to attempt any elaborate criticism of a volume of this character without having applied the crucial test of experience. Those who are called upon to use it day by day will soon discover all that can be urged against it. Altogether, we are strongly of opinion that these two volumes (v. and vi.), which contain the *Hymenomycetes*, will be more used and better appreciated than any of those which preceded them. About two additional volumes, which are promised for 1889, will complete this arduous undertaking, and we congratulate Professor Saccardo on his energy and promptitude. One part has already appeared since the foregoing paragraph was written.

VOL VII., PART II.

This part, which completes the seventh volume, contains some 400 pages, and is devoted to the *Ustilagineæ* and the *Uredineæ*, compiled by Dr. J. B. de Toni. Very little criticism can be offered on this part, in which the usual classification prevalent throughout the work is continued. There are the Amerosporæ, Didymosporæ, Phragmosporæ, and Dictyosporæ, and finally a subsidiary group of imperfect forms (*Status secundarii*), but nothing sensational. It is strange how an error which has once got into print becomes perpetuated. At p. 768 two species of *Milesia* are described; one of these is *Milesia Polypodii*, B. & White, which is the type, and the only species in fact. The other is *Milesia Polygoni*, B. & White, which is merely the copy of a misprint in the "Annals of Natural History," No. 1,709, and really was intended for *Milesia Polypodii*.

No. 2,959, *Æcidium incarceratum*, B. & Br., is only a synonym of *Doassansia Sagittariæ*.

No. 2,930, *Æcidium strobilinum*, A. & S., has already appeared in Vol. iii. (No. 3,655) as *Pleosporopsis strobilinum*, Œrst.

By some oversight *Testicularia*, Klotsch., has been omitted from the *Ustilagineæ*, to which it is clearly allied, and inserted in *Lycoperdaceæ* (Vol. vii., p. 150), with which it has no affinity.

However, these are merely stray suggestions which have occurred to us in casually turning over the pages. The merits and demerits of such a work do not appear until tested by experience. At any rate this, as well as the kindred volumes, will be indispensable to the library of the mycologist, especially when the appendices have swept up all the stray species from out-of-the-way places, which may have been overlooked and forgotten, notably those of which the diagnoses have been issued with the specimens in some *exciccati*, and are not published elsewhere.

BRITISH UREDINEÆ AND USTILAGINEÆ.*

The promised "Monograph of the Uredines" has now been published in a handsome volume, against the "get-up" and appearance of which nothing can be urged of more importance than the colour of the binding, which may be eccentric, but it is not "nice." Fortunately neither a good man nor a good book depends on the colour of the coat in an estimate of value. It is generally enough known, amongst readers of this journal, that we do not accept the hypothesis advanced by Mr. Plowright as sufficient or as proven. Apart from this, and with a reservation to that extent, we proceed to an unprejudiced examination of the work in question. The first hundred pages are biological. The remaining two hundred are systematic. The former portion includes—Mycelium of the Uredineæ, Spermogonia, Æcidiospores, Uredospores, Teleutospores, Heteræcism, Mycelium of the Ustilagineæ, Germination of Teleutospores, Infection of Host Plants, Spore Culture, and Artificial Infection of Plants. The latter portion contains descriptions of the British Uredineæ, Imperfect forms, Descriptions of British Ustilagineæ, Allied and associated species, The Barberry law of Massachusetts, Glossary, List of authors quoted, Index of Host plants, Biological Index, and Index of species, the whole illustrated with 13 woodcuts and 8 plates. The type employed is new and clear, the pages free from all crowding, the paper good, so that altogether it is a book agreeable to handle and read.

The author appears to have done his work as carefully and conscientiously as the printer. The biological portion is forcibly and lucidly explained, and the peculiar views are urged with moderation, but with unflinching perseverance. It is no small praise to add that throughout the whole work there is an entire absence of those disagreeable personalities, which serve no useful purpose, and are petty in themselves, but which have sadly disfigured some scientific books. This is, we presume, the first time that Mr. C. B. Plowright has made his appearance as the author of a whole volume, entirely to himself. We congratulate him most heartily on the result, for the slight criticisms we shall hereafter make are insufficient to affect the general character of the work.

There appear to be some few botanists who love to banish old and well-established specific names in favour of others, which they are ready to suppose have a still older and prior claim. It is not too much to say that, even in cases where priority could be claimed, it is seldom advisable to increase synonymy by such unnecessary alterations. Whenever the alteration *is* made, it should be made,

* "A Monograph of the British Uredineæ and Ustilagineæ," by C. B. Plowright, with woodcuts and eight plates. London: Kegan Paul, Trench, and Co., 1889.

at least, upon indisputable grounds. It was some satisfaction to us to discover that our author had not followed some Continental authors in this iniquity, but retained still the names sanctioned by long usage. There are, nevertheless, one or two instances in this work in which "emendations" are made to which we take exception.

Puccinia arundinacea, Hedw., is replaced by *Puccinia phragmitis*, on the ground that the uredospores were described previously as *Uredo phragmitis*, Schum.

Puccinia truncata, B. & Br., is superseded by *Puccinia iridis*, because the uredospores were described first as *Uredo iridis*, D.C.

Puccinia luzulæ, Lib., has to give way for a similar reason to *Puccinia oblongata*.

Puccinia noli-tangeris, Corda, has been made to succumb to *Puccinia argentata*.

Puccinia anemones, Pers., is abolished in favour of *Puccinia fusca*, because Relham called it *Æcidium fuscum*.

Puccinia scorodoniæ, Link., is superseded by *Puccinia annularis*, because its uredospores were called *Uredo annularis* by Strauss.

But, worse than all, *Puccinia sparsa*, Cke., has been supplanted by *Puccinia tragopogi*, because the *Æcidium tragopogi* of Persoon was first described; altogether ignoring the fact that for 45 years there has been another *Puccinia tragopogi* described and figured by Corda, as *P. tragopogonis*.

We contend that all these changes were quite unnecessary, and hence unjustifiable; because "the essential point in nomenclature is to avoid, or to reject the use of forms, or names, that may create error or ambiguity, or throw confusion into science. Next in importance is the avoidance of any useless introduction of new names." (*Laws of Botanical Nomenclature.*)

"It is impossible to deny a certain right of *custom;* the maintenance of well-known names of forms in frequent use often gives clearness or precision, and does away with the necessity of new ones." (*Commentary.*)

"Nobody is authorized to change a name because it is badly chosen or disagreeable, or another is preferable or better known, or for any other motive, either contestable or of little import." (*Laws of Botanical Nomenclature.*)

There is another point on which there will doubtless be students, as ignorant as ourselves, who would desire to be enlightened.

At page 150 occurs *Puccinia variabilis*, Grev., Fl., Ed., p. 431, with its Æcidiospores = *Æcidium Taraxici*, Grev., Fl., Edin., p. 444.

Again, at p. 186 is *Puccinia taraxici*, Plow., with its synonym, *Puccinia variabilis*, Grev., Fl., Edin., p. 431. Does the description by Greville fit both species, or is there only one? Our own experience is in favour of there being two distinct species of *Puccinia* on leaves of *Taraxacum*, the teleutospores of which are readily distinguishable by the microscope; but surely both were

not included within the one description by Greville, or, if so, "in part" should have followed each citation.

Again, it seems rather puzzling to some, who may not be wedded to a preconceived theory, that *Æcidium ranunculacearum*, D.C., should furnish at p. 130 the Æcidiospores of *Uromyces dactylidis*, at p. 130 the Æcidiospores of *Uromyces Poæ*, at p. 178 the Æcidiospores of *Puccinia magnusiana*, at p. 180 the Æcidiospores of *Puccinia perplexans*, and at p. 266 the Æcidiospores of *Æcidium ranunculacearum*, doubtfully belonging to any *Uromyces* or *Puccinia*. Doubtless this is one of the things which Lord Dundreary would have said "no feller can understand."

It has yet to be shown that Biological characters alone are sufficient to constitute that variable quantity called "a species."

We fail to appreciate the advantage of including at all in a work of this kind such species as *Æcidium strobilinum*, A. & S., which is not an *Æcidium* at all, but belongs to the Sphæropsideæ, as *Pleosporopsis strobilinum* (Sacc. Syll., Vol. iii., p. 693).

And *Æcidium incarceratum*, B. & Br., which is undoubtedly a synonym of *Doassansia Sagittariæ*, Fckl., afterwards entered on p. 295.

And, finally, *Tuberculina persicini*, Ditm., one of the Hyphomycetes, included by Saccardo (Sylloge, Vol. iv., p. 653) in the Tuberculariеæ, with which arrangement we concur.

This much is sufficient to show that, with the exception of certain doctrines, we can find but little to complain of in this book, but, on the contrary, can conscientiously advise all our readers to possess themselves of a copy before it is out of print, and not wait to make wry faces when they are compelled to buy it up as a "scarce" work at fancy prices.

M. C. C.

FUNGI SCANDINAVICI.

Supposed that a sufficient number of subscribers should be interested, I intend, with the assistance of experienced men of science, to publish a collection of dried (and pressed) Fungi, especially Scandinavian. The work, that might have the title of

"Fungi exsiccati præsertim Scandinavici,"

is intended to comprehend, as far as possible, all the orders and families of the Fungi. It will be distributed in fascicles of 100 species or forms. The Fungi will be fixed on loose sheets in order to afterwards be arranged at will. The number of the fascicles is undefined. Until further notice, 1-3 fascicles a year will be published from 1889 forward. Price per fascicle, 11s., exclusive the freight. It may be subscribed to one, several, or all fascicles, at pleasure. Orders are to be addressed to me before 1 May, 1889.

Contributions respectfully requested.

Lars Romell,
Fil. Kand., Karlavägen 28, Stockholm, Sweden.

OMITTED DIAGNOSES.

The following are some of the Diagnoses mentioned in "Grevillea," xvii., p. 19, as omitted from Saccardo's "Sylloge."

Cercospora calthæ, *Cooke.*

Maculis orbicularibus, epiphyllis, fuscis, hyphis brevibus, hyalinis; conidiis cylindraceis, supra subattenuatis; septis vix distinctis, 30-35 × 2 μ.

On leaves of *Caltha*. Forres, N.B.

Cercospora longissima, *Cke. & Ellis.*

The same as *C. beticola*, Sacc.

On beet leaves. New Jersey. (*Ellis*, 2721.)

Heterosporium maculatum, *Klot. in Herb. Kew.*

Cæspitulis minutis, gregariis. Hyphis brevibus, septatis, flexuosis, brunneis, mycelio radiante, concolori, oriundis. Conidiis ellipticis, utrinque rotundatis, 1-3 septatis, fuscis, 25-28 × 12 μ. Episporio minute granuloso-asperatis.

On stems and leaves of Monocotyledons—apparently *Typhæ* and *Sparganium*.

Dendryphium quadriseptatum, *Cooke.*

Tenue effusum. Hyphis fasciculatis, erectis, obscure septatis, ad apicem ramulosis, ramulis plerumque oppositibus; conidiis cylindraceis, quadriseptatis, nec constrictis, atro-fuscis, 30-35 × 8-9 μ.

On decorticated *Magnolia*. New Jersey. (*Ellis.*)

Coniothecium subglobosum, *Cooke.*

Acervulis orbicularibus, applanatis, atris (sub. 1 mm. diam.), conidiis subglobosis vel ovatis, 1-3 septatis, sæpe cruciatis, fuscis, 14 × 10, vel 15 × 8-9 μ.

On leaves of *Calocasia* ("tara"). Raritonga.

Macrosporium chelidonii, *Rabh. Unio. Itin.* XXXVII.

The specimens in the Kew Herbarium Exsiccati are without fruit, and no diagnosis is within our knowledge.

On *Chelidonium glaucium*. Alghero. (*Dr. Marcucci.*)

Macrosporium cæspitulosum, *Rabh. Unio. Itin.* XXXII.

Cæspitula initio sparsa, demum confluentia; hyphæ erectæ, rigidæ, simplices, in morem *H. subulati;* sporæ omnium maximæ, oblongo-cylindricæ v. clavatæ, plus minus curvulæ, diametro (·0006-·0007″), 4, 5-6 longiores, multi-septatæ, basi sæpius in caudam stipitiformem productæ.

On twigs of *Quercus*. Tempio-Gallura. (*Dr. Marcucci.*)

Macrosporium elegantissimum, *Rabh. Unio. Itin.* XXXV.

Cæspitulis densis, erumpentibus, atris, floccosis; floccis simplicibus, subtilibus, hyalinis; sporis subglobosis oblongisve, varie

divisis, sæpe muriformibus, dilute aureis, septis obscuris, diametro æqualibus vel duplo longioribus. *Rabh. Fung. Eur.* 2883.

On twigs. Alghero, Sardinia. (*Dr. Marcucci.*)

The type specimen is not a *Macrosporium*.

Macrosporium oleandri, *Rabh. Unio. Itin.* XXIX.

" Sporis oblongis v. subclavatis, tetrablastis ·0006" longis."

On twigs of *Nerium oleander*. Tortoli. (*Dr. Marcucci.*)

The Kew Herbarium specimens are sterile, and the sole description is given above.

Macrosporium spaniotrichum, *Rabh. Unio. Itin.* XXIX.

Cæspitulis gregariis, erumpentibus, minutis, atris. Hyphis brevibus, simplicibus, septatis, sporarum æquilongioribus, hyalinis; sporis elongato-ellipticis, triseptatis (nondum muriformibus) fuligineis, 30 × 10 μ.

On herb stems. Terranova. (*Dr. Marcucci.*)

This is evidently not a *Macrosporium*.

Macrosporium graminum, *Cooke Rav. Amer. Ex.* 606.

Effusum, tenuissimum, nebulosum. Hyphis repentibus, demum ramulis assurgentibus, flexuosis, septatis, fuscis conidiis clavatis 4-5 septatis, subconstrictis, dein muriformibus, fuscis, 60-70 × 22 μ.

On leaves of bamboo. S. Carolina.

Cladosporium chætomium, *Cooke.*

Cæspitulis minutis, in foliis viventibus, erumpentibus, atris, peritheciis *Chætomii* simulantibus. Hyphis densissime congestis, flexuosis, simplicibus, septatis, fuscis ; conidiis uni-dein triseptatis, cylindricis, obtusis, 30-40 × 7 μ, pallide fuscis.

On leaves of *Euphorbia*. New Jersey. (*Ellis No.* 2289.)

Cladosporium gleditschiæ, *Cke. in Rav. Amer. Ex.* 297.

Carpigenum, effusum, olivaceum. Hyphis repentibus, assurgentibus, tenuibus, flexuosis, septatis, fuscis ; conidiis arcte ellipticis, demum elongatis, 1-3 septatis vix constrictis, succineis, 12-20 × 4 μ.

On legumes of *Gleditschia*. S. Carolina.

Cladosporium microporum, *Rabh. Unio. Itin.* XLII.

Hypophyllum. Cæspitulis erumpentibus, gregariis, minutissimis, atris. Hyphis conidiisque—?

On leaves of *Nerium oleander*. Gonnos-Fanadiga. (*Dr. Marcucci.*)

In our specimens only a minute species of *Coniothyrium* can be found.

Cladosporium obtectum, *Rabh. Unio. Itin.* XXXVI.

Epiphyllum, tenue effusum. Hyphis repentibus, demum assurgentibus, tenuibus, flexuosis, septatis, fuscis ; conidiis ellipticis,

cylindraceis, vel clavulatus, uniseptatis, utrinque subattenuatis, pallide fuscis, 12-16 × 5-6 μ.

On *Artemisia maritima*. Alghero. (*Dr. Marcucci.*)

Cladosporium pelliculosum, *Berk. & Curt. in Herb.*

Scarcely appears to differ from *Cladosporium effusum*, B. & C., and does not seem to have been described.

On leaves of *Polygonum punctatum, Lobelia*, etc. S. Carolina.

Cladosporium subnodosum, *Cke. in Rav. Amer. Ex.* 294.

Epiphyllum. Cæspitulis orbicularibus (circa 1 mm.), atro-olivaceis, compactis. Hyphis flexuosis, crassiusculis, fuscis, septatis, ad septis nodulosis, ad apicem, hyalino-attenuatis; conidiis ellipticis, utrinque rotundatis, 1-3 septatis, olivaceis, minutissime granulato-asperatis, 15-25 × 9-10 μ.

On leaves of *Spinacia*. S. Carolina.

Probably *Heterosporium*.

Ceratophorum subulatum, *Cke. & Ellis.* = *Clasterosporium subulatum*, Cooke & Ellis.

Effusum, atrum. Hyphis repentibus, ramosis, parcis, septatis, conidiis majusculis, rectis, obclavatis, 5-7 septatis, nucleatis, fuligineis, apice in cuspidem longam, hyalinam, continuam desinentibus, 70-100 × 15 μ, cum cuspidem 180 μ long.

On bark of *Liquidambar* and *Castanea*. S. Carolina and New Jersey.

Helminthosporium avenaceum, *Curtis Herb.*

Effusum, atrum, tenue velutinum. Hyphis erectis, crassiusculis, septatis, subopacis, conidiis cylindraceis, vel subfusoideis, utrinque rotundatis, 4-5 septatis, pallide melleis 75-85 × 15 μ.

On straw. United States.

Helminthosporium collabendum, *Cooke.*

Effusum, indeterminatum, atrum. Hyphis flexuosis, septatis, hinc illic breviter furcatis, fuscis ; conidiis fusiformibus triseptatis (rarius quadriseptatis) aureo-fulvis, 60-70 × 12-14 μ. Episporio tenui, collabendo.

On bark. S. Carolina.

Helminthosporium gramineum, *Rabh. Herb. Myc.* 332.

Tenuissime effusum. Hyphis brevibus, subflexuosis, pallide fuscis. Conidiis solitariis, elongato-cylindraceis, 3-6 septatis.

On fading leaves of *Hordeum vulgare*. Poppelsdorf.

Allied to *H. gracilis*, Wallr., but differing in the conidia being solitary and elongated-cylindrical, 3-6 septate.

Helminthosporium minimum, *Cooke.*

Tenue effusum, velutinum, atrum. Hyphis erectis, tenuibus, fuscis (vix 100 μ longis excedentibus). Conidiis fusiformibus, utrinque obtusis, triseptatis, hyalinis, 12-14 × 3-4 μ.

On decorticated branches. Hereford.

Helminthosporium palmetto, *Gerard.*

Tenuissime in plagas orbiculares, effusum quandoque confluens. Hyphis erectis, crassiusculis, septatis, fuscis. Conidiis fusiformibus, triseptatis, aureo-succineis, 45×8 μ.

On leaves of Palmetto. Louisiana, U.S.

Helminthosporium resinaceum, *Cooke.*

Effusum, indeterminatum, atrum, opacum. Hyphis simplicibus vel furcatis, septatis, constrictis, crassiusculis, fuligineis. Conidiis subfusiformibus, majusculis, 7 septatis, quandoque leniter curvulis, 70×10-12 μ, olivaceo-fuscis.

On Pine resin. Shère.

Helminthosporium reticulatum, *Cooke Fun. Britt.* I., 360.

Reticulato-effusum, maculas irregulares efformantibus. Hyphis fasciculatis, flexuosis, tenuibus, septatis, fuscis, ad apicem hyalinis. Conidiis subfusiformibus, utrinque obtusis, triseptatis, constrictis, fuscis, 22×7 μ.

On dead leaves of *Fraxinus.* Thirsk, Yorkshire.

Helminthosporium congestum, *Berk. & Curt.*

This is doubtful. The specimen from Wright (Cuba) is barren, and hence cannot be described. There is no specimen under this name in the Berkeley Herbarium, and no diagnosis appears to have been published.

Verticillium puniceum, *Cke. & Ellis.*

Puniceum, subcompactum ; cæspitulis pulvinatis, ellipticis vel confluentibus. Hyphis tenuibus, septatis, ramosis ; ramulis verticillatis, brevibus, roseo-tinctis ; conidiis ellipticis, minutis, continuis, profusis, hyalinis, 4×2 μ.

On wood of *Quercus.* Newfield, N.J. (*Ellis* 2222).

Botrytis cubensis, *Berk. & Curt.*

This proves to be only a synonym of *Peronospora cubensis,* B. & C.

Botrytis brunneola, *Rabh. Herb. Myc.* 771.

Acervules velutinis, effusis, olivaceo-fuscis ; hyphis erectis, subsimplicibus, fuscis ; ramis verrucæformibus s. elongatis. Conidiis oblongis, vel ovoideis, hyalinis, e verrucis innovantibus, episporio pallide colorato (8-10×5-6 μ).

In capitulis humi jacentibus. Doemitz.

Botrytis sonchicola, *Rabh. Herb. Myc.* 175.

This is fully described in " Botanische Zeitung " for 1852, p. 620.

Botrytis atrofumosa, *Cooke & Ell.*

Effusa, indeterminata, atrofumosa, hyphis tenuibis, gracilis, sparse furcatis, septatis, subhyalinis; conidiis profusis, agglomeratis, subglobosis, continuis, fuscis, 5-6×4 μ.

On *Quercus* bark and wood. S. Carolina. (*Rav.* 3275). N. Jersey, U.S. (*Ellis* 2773.)

Sepedonium armeniacum, *Berk. & Curt.*

Specimens of *Sepedonium subochraceum*, B. & C., were distributed by Curtis under this name, and it is, therefore, synonymous.

Fusidium leptospermum, *Pass. in Speg. Dec.* 54.

Maculæ hypophyllæ, albæ, subrotundæ, parvulæ ; conidia tenuia, fusiformi-clavata, hyalina 30-45 × 2½ foventes.

On leaves of *Ranunculus bulbosus*. Parma.

Cylindrium minutissimum, *Rabh. Univ. Itin.* XXIV.

Perexiguum ; conidiis cylindricis, utroque polo rotundatis, achrois, hyalinis, apicibus concatenatis ; catenis plus minus ramosis.

In consortio *Torulæ*. Lanusei. (*Marcucci.*)

Oidium obtusum, *Thum. Myc. Univ.* 289.

Hyphis longissimis, simplicibus, rectis, interdum septatis ; conidiis cylindraceis, utrinque obtusis, hyalinis, longitudine varie, 6-16 μ long, 5 μ crass.

On cheese. Bayreuth.

Oidium cydoniæ, *Pass. in Thum. Myc. Univ.* 1667.

Conidia elliptica, sub-solitaria, vel duo triaconcatenata, hyphis longis fulta, 22-23 μ long, 15 μ crass.

On leaves of *Cydonia vulgaris*. Parma.

Sterigmatocystis agaricini, Therry MSS. (nec Speg. MSS.).

Sporotrichum resinæ, *Fries* = *Racodium resinæ*, Fr. Obs. I. 216.

Haplaria Elisii, *Cooke.*

Tenuiter effusa, purpureo-fusca. Hyphis tenuibus, erectis, simplicibus, subopacis, atro-fuscis ; conidiis ovatis, continuis, concoloribus 4 × 2 μ.

On wood of *Abies Douglassi*, etc. California. New Jersey, U.S.

SOME BRISBANE FUNGI.

By M. C. Cooke.

Mutinus sulcatus, *Cke. & Mass.*

Stipite cylindrico, cervino (10 cm. long, 1½ cm. crass), parte sporifera ⅓ totius receptaculi altitudinis longa, campanulato, longitudinaliter sulcato, transverse ruguloso, apice demum pervio, vel lacerato, margine contiguo, atro-olivaceo. Volva ampliata, alba. Sporis 3 × 1½ μ.

On the ground. Brisbane. (*Bailey*, 640.)

Strumella hysterioidea, *Cke. & Mass.*

Sporodochiis gregariis, erumpentibus, prominulis, elongato-ellipticis, hysteriformibus (1-2 mm. long, ½-1 mm. diam.), compactis, atris ; hyphis brevissimis, conidiis sphæroideis, vel subsphæroideis, continuis, olivaceis (7-8 μ long).

On denudated branches. Brisbane. (*Bailey*, 635.)

Hypoxylon (Placoxylon) ellipticum, *Cke. & Mass.*

Parallelum, ellipticum (3-5 × 2 mm.), convexo-planum, atrum, opacum, intus concolorum. Ostiolis minutis, congestis, punctiformibus. Ascis cylindraceis. Sporidiis fusiformibus, continuis, fuligineis, primitus nucleatis (23-25 × 6-7 μ).

On decorticated wood. Brisbane. (*Bailey*, 631.)

Allied to *H. allantoideum*, but differing in fruit and in more distinct ostiola.

Uromyces phyllodiæ, *Cke. & Mass.*

Maculis ellipticis, bullatis, fuscis; soris minutis, orbicularibus, congestis, compactis, brunneis, demum nudis, nec pulverulentibus, (maculis 3-5 mm. long). Uredosporis nondum vidi. Teleutosporis ellipticis, obtusis, rarius apiculatis, fuscis; episporio minute verruculoso, crassiusculo, hyalino, ad apicem incrassatis (40-45 × 16-18 μ).

On phyllodes of *Acacia*. Brisbane. (*Bailey*, 643.)

Resembling in some particulars *Uromyces fusisporum*, C. & M., but differing in the sori being crowded on bullate spots, in their brown colour, and in the form of the broader teleutospores.

THREE NATAL FUNGI.

By M. C. Cooke.

Agaricus (Schulzeria) umkowaani, *Cke. & Mass.*

Pileo carnoso, hæmispherico, explanato, sicco, minute granuloso, albido (3-4 unc. lato), stipite fusiformi-radicato (12-16 unc. long, $\frac{1}{2}$ unc. crass), solido, glabro, concolori; lamellis liberis, postice attenuatis, confertis, sublatis, albis, sporis ellipticis, 10 × 4-5 μ. Edulis.

On the ground. D'Urban. (*Wood*, 4060.)

Two-thirds of the stem rooting in sand.

"Called 'Umkowaan' by the natives, and is delicious when cooked, much superior to the common mushroom."

Uredo celastrineæ, *Cke. & Mass.*

Soris hypophyllis, magnis, bullatis, epidermide tectis, gilvis; uredosporis elongato-ellipsoideis (40-50 × 14-16 μ). Episporio crassiusculo, granuloso-verrucoso, hyalino, plasmate aurantiaco.

On living leaves of *Salacia Kraussii*. D'Urban. (*Wood*, 4028.)

Æcidium Royenæ, *C. & M.*

Maculis nullis. Hypophyllum, pseudoperidiis gregariis, totius superficies occupantibus, cupularibus, aureis, margine minute serrulato, albo, æcidiosporis concatenatis, quadratis, minute rugulosis, 18-12 μ diam.

On leaves of *Royena pallens*. Berea. Natal. (*Wood*, 4078.)

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Notice.—A temporary derangement and breakdown at the plate printers has caused a short suspension of the work on "Illustrations of Fungi," which, it is hoped, will be restored and carried on vigorously next month.

Grevillea,

A QUARTERLY RECORD OF CRYPTOGAMIC BOTANY AND ITS LITERATURE.

BRITISH PYRENOMYCETES.

By G. Massee.

(*Continued from p.* 58.)

Fam. 12. CERASTOSTOMEÆ. Perithecia for the most part immersed, or sometimes subsuperficial, rostrate.

Gen. 1. **CERASTOSTOMELLA.** Perithecia rather carbonaceous. Sporidia hyaline.

* Rostratella. *Sporidia subovoid.*

C. rostrata, *Fr.*, *Sacc. Syll.* 1546.
On rotten wood. Milton, Norths.
C. cirrhosa, *P.*, *Sacc. Syll.* 1547 ; *Hdbk.* 2625.
On rotten wood. Cotterstock, Lynn, Forden.
C. ampullasca, *Cke.*, *Sacc. Syll.* 1549 ; *Hdbk.* 2628.
On rotten oak. Shere.
C. vestita, *S.*, *Sacc. Syll.* 1550.
On hard decorticated wood. Shere.
C. Stevensoni, *B. & Br.*, *Sacc. Syll.* 1562.
On rotten wood. Glamis, N.B.

** Lentomita. *Sporidia uniseptate.*

C. ligneola, *B. & Br.*, *Sacc. Syll.* 2285 ; *Hdbk.* 2627.
On decayed oak. Somerset, Sydenham, Shrewsbury.
C. stylophora, *B. & Br.*, *Sacc. Syll.* 2286 ; *Hdbk.* 2630.
On bark of sycamore. Mossburnford, Shere.

*** Ceratosphæria. *Sporidia multiseptate.*

C. lampadophora, *B. & Br.*, *Sacc. Syll.* 3681 ; *Hdbk.* 2629.
On decayed wood. Coombe Hay, Bath.
C. crinigera, *Cke.*, *Sacc. Syll.* 3682.
On decorticated pine wood. Lynn.

** Ophioceras. *Sporidia filiform, septate.*

C. bacillata, *Cke.*, *Sacc. Syll.* 4111 ; *Hdbk.* 2636.
On decorticated rotten sticks. Shere.

Gen. 2. **CERATOSTOMA,** *Fr.* Perithecia rather carbonaceous, sporidia coloured.

C. piliferum, *Fr.*, *Sacc. Syll.* 786 ; *Hdbk.* 2626. (= *dryina*, *Pers.*).
On pine wood.

Gen. 3. **GNOMONIA.** Perithecia submembranaceous, erumpent, ostiolum rostellate ; sporidia hyaline.

* Gnomoniella. *Sporidia continuous.*

G. tubiformis, *Tode*, *Sacc. Syll.* 1567 ; *Hdbk.* 2738.
On dead leaves (alder, hornbeam, &c.). N. Wootton, Shrewsbury, Spye Park, Wilts.
G. avellanæ, *Sch.*, *Sacc. Syll.* 1569 ; *Hdbk.* 2737.
On dead hazel leaves. King's Cliffe, Darenth, Scarboro'.
G. vulgaris, *Ces.*, *Sacc. Syll.* 1578 ; *Hdbk.* 2739.
On hazel leaves. King's Cliffe, King's Lynn, Thirsk, Scarboro', Darenth, Bristol.
G. devexa, *Desm.*, *Sacc. Syll.* 1583.
On *Polygonum persicaria*. Lynn.

** Mamiana. *Perithecia seated on a stroma.*

G fimbriata, *Pers.*, *Sacc. Syll.* 1589 ; *Hdbk.* 2735.
On leaves of hornbeam. Common.
G. coryli, *Batsch*, *Sacc. Syll.* 1590 ; *Hdbk.* 2736.
On living leaves of hazel. Darenth, Bexley (Kent) ; King's Cliffe, Suffolk, Castle Howard (Yorks).

*** Closterignomonia. *Sporidia fusoid, uniseptate.*

G. setacea, *Pers.*, *Sacc. Syll.* 2204 ; *Hdbk.* 2740 (in part).
On the petioles, veins, and leaves of various trees, especially *Acer pseudoplatanus*. Wothorpe (Northe.), Hampstead, Neatishead, Darenth, Shere, Lynn, Scarboro'.
G. inclinata, *Desm.*, *Sacc. Syll.* 2206 ; *Hdbk.* 2740 (in part).
On dead leaves of *Acer campestre*. Highgate.
G. suspecta, *Fckl.*, *Sacc. Syll.* 2212.
On dead leaves of oak and beech. Shere.
G. campylostoma, *Auers.*, *Sacc. Syll.* 2219.
On birch leaves. Carlisle.
G. petiolicola, *Fckl.*, *Sacc. Syll.* 2222.
On petioles of sycamore leaves. Highgate, Crystal Palace.

G. graphis, *Fckl.*, *Sacc. Syll.* 2225.
On dead leaves of *Rubus fruticosus*. Lynn, Nesscliffe.

*** Species dubiæ.

G. curvirostra, *Sow.*, *Sacc. Syll.* 2238 ; *Hdbk.* 2724.
On stem of umbellifer.
G. ariæ, *Fckl.*, *F. Rhen.*, *Sacc. Syll.* 877 ; *Hdbk.* 2741.
On leaves of *Pyrus aria*. Darenth.

SOME EXOTIC FUNGI.

By M. C. Cooke.

Lenzites sinensis, *Cooke.*
Pileo suberoso-coriaceo, plano (1-2 in.), basi gibbo, glabro, zonato, radiatim rugoso, submargine umbrino, postice saturate purpureo-brunneo, margine acuto, contextu lignicolori ; lamellis tenuibus, rigidis, dichotomis, acie demum laceratis, sordidis dein umbrinis. Sporis 6 × 3½ μ.
On logs. China, Prov. Hupeh. (*Dr. A. Henry*, No. 7926).
Somewhat allied to *L. eximia*, B., but quite distinct and characteristic.

Ditiola phyllogena, *Cke. & Mass.*
Stipitata, ad basim confluens, albo-floccosa, cupula planiuscula, disco læte aureo. Sporis fusiformibus, uniseptatis, demum triseptatis, hyalinis, 12-13 × 4-5 μ.
On coriaceous leaves. Castle Bruce. Dominica. (*G. A. Ramage.*)

Geaster argenteus, *Cooke.*
Exoperidio 8-10 fido (1½ unc. diam.), laciniis anguste lanceolatis, apice passim bifidis, tenuis, siccitate arcte involutis, extus albido-nitidis, intus fuligineo-umbrinis ; endoperidio globoso (⅔ unc.), sessili, glabro, pallido ; peristomio dentato-lacerato capillitio delicatulo, hyalino, 4-6 μ diam. Sporis globosis, glabris, pallide fuscis, pellucidis, 4 μ diam.
In Saskatchewan. (N.W. Amer. Expl. Exp.)
Allied to *G. floriformis*.

Phoma corvina, *Ravenal, No.* 588.
Peritheciis globoso-depressis, sub-cutaneo erumpentibus, atris, laxe gregariis, vix papillatis. Sporulis minutis, ellipticis, continuis, hyalinis, 3 × 1 μ. *Sphæria corvina.* Ravenal MSS.
On branches of *Gossypium*. S. Carolina. (*Ravenal.*)

Phoma globigera, *Cke. & Mass.*
Peritheciis gregariis, numerosis, punctiformibus, atris, sursum nudis, convexis ; sporulis globosis, continuis, hyalinis, 5-6 μ diam.
On twigs of *Vitis vinifera*. (*Mende.*)

Cladosporium epibryum, *Cke. & Mass.*

Cæspitulis minutissimis, atris. Hyphis simplicibus, brevibus, flexuosis, septatis, olivaceis, superne pallidioribus; conidiis ellipticis, utrinque rotundatis, uniseptatis, medio constrictis, pallide fuscis, hyalinis, 18-20 × 10-12 μ.

On capsules of various mosses. United States. (*Mrs. E. G. Britton.*)

Pleospora muscicola, *Cke. & Mass.*

Peritheciis sphæroideis, basi applanatis, breve papillatis, nigris, subnitidis, lævibus. Ascis clavatis, octosporis, brevissime stipitatis; sporidiis distichis, ellipsoideis, utrinque rotundatis, medio constrictis, 5-7 septato-muralibus, saturate fuligineis, 30-35 × 12-15 μ.

On *Bryum pendulum.* Dumb-bell Bay, 82° N. (*Capt. Fielder.*)

The upper half of the sporidium is broader than the lower in the majority of cases. The colour is sometimes so dark as to be almost opaque.

ON ERYSIPHE POLYCHÆTA, *B. & C.*, AND UNCINULA POLYCHÆTA, *B. & C.*

The above species, although first described only a dozen years ago, have, owing to various reasons, been plunged into a state of uncertainty quite on a par with the microscopic species of old authors. Both species are described by Berkeley, as quoted below, in "Grevillea," Vol. iv., p. 159 (1876), each being followed by a fuller description drawn up from the *type specimen.*

"*Erysiphe polychæta,* B. & C.—Maculis orbicularibus; appendicibus brevibus plurimus rectis; ascis elongatis clavatis. On leaves of *Celtis.* Alabama. Peters, No. 3876. Spots orbicular, yellow-brown in the centre, from the young perithecia; appendages about equal to their diameter, straight; asci elongated, clavate." —"Grev.," Vol. iv., p. 159.

Hypophyllous, spots dense, whitish, perithecia generally numerous, brownish, becoming black, subdepressed, 250-300 μ diam., appendages numerous, 200 or more, colourless, simple, when young perfectly straight, when fully developed more or less involute at the tips, which are attenuated at all stages; asci about 50, subcylindrical and abruptly attenuated at the base into a slender pedicel, constantly bisporous; spores smooth, colourless, simple, cylindrico-ellipsoid, 26-30 × 11-14 μ. (Type in Herb. Berk., Kew, No. 10543.)

It will be seen from the above full description that Berkeley had drawn up his diagnosis from a young perithecium having the appendages yet straight.

"*Uncinula polychæta*, B. & C.—Peritheciis sparsis; appendicibus multis. On leaves of *Celtis occidentalis*. Car., No. 5619. Perithecia scattered; appendages about 28, $1\frac{1}{2}$ longer than the diameter of the perithecia, hyaline."—"Grev.," Vol. iv., p. 159.

Hypophyllous, mycelium very scanty, not forming spots; perithecia scattered, usually not more than two or three on a leaf, 150-200 μ diam., appendages 25-28, simple, colourless, very slender, about $300 \times 2\text{-}3$ μ. Apices strongly involute, not at all incrassated; asci about 25, cylindrico-clavate, tetrasporous; spores colourless, simple, elliptic-oblong, 20×10 μ. (Type in Herb. Berk., Kew, No. 10588.)

The fact of both species being met with on leaves of *Celtis* and both having the same specific name has apparently led to the idea that the two species are identical, and the difficulty is not lessened by the species described as *Erysiphe polychæta*, B. and C., being issued in Ravenel's Fung. Car. Exs. iv., No. 68, as *Uncinula polychæta*, B. & C., which appears, and with reason, to have been accepted as the species *described* by Berkeley under the last name, which is not the case. In "Michelia," ii., p. 373, Saccardo established a new genus, *Pleochæta*, from specimens collected by Spegazzini at Buenos Ayres, and described by the latter as *Uncinula Lynckii*, Speg., Fung. Arg. Pug. ii., p. 17. These specimens were considered to be identical with the *Uncinula polychæta*, B. & C., as published by Berkeley, *Erysiphe polychæta*, B. & C., being given as a synonym, and the whole included under the name of *Pleochæta Curtisii*, Sacc. and Speg. The genus *Pleochæta* is kept up by Saccardo in the "Sylloge," Vol. i., p. 9, with the following remarks after the generic diagnosis:—"Setis creberrimis, rectis, contextu perithecii subcoriaceo, ascis teretiusculis, etc., ab *Erysiphe* et *Uncinula* dignoscitur." In the "Journal of Mycology," 1886, p. 43, Ellis shows that Spegazzini's South American specimens are identical with *Uncinula polychæta*, B. & C., of Ravenel's Fung. Carol. Exs. iv., No. 68 (= *Erysiphe polychæta*, B. & C., "Grev.," Vol. iv., p. 159). Ellis endeavoured to reconcile the specimens in Ravenel's Exs. quoted above with the description of *Uncinula polychæta*, B. & C., as follows:—"Possibly the statement that the number of appendages is 'about 28' is a typographical error for 'about 228,' which would be nearer the actual number."

In his *Additamenta* to the first four volumes of the "Sylloge," Saccardo adds considerably to the confusion by still keeping up the genus *Pleochæta*, and giving a revised diagnosis of *P. Curtisii*, Sacc. and Speg., the only species in the genus, which is a translation of the one given by Ellis in the "Journal of Mycology," as quoted above, and is as follows:—"Appendicibus numerosis circ. 200, hyalinis, continuis, apice attenuatis, et incurvatis ornata." It is generally admitted that in the group of Fungi under consideration the perithecial appendages constitute an important factor in

the discrimination of genera. Nevertheless, as pointed out by Cooke in "Grevillea," Vol. xi., p. 35, we have, in the present instance, a genus established by Saccardo, the leading character of which consists in the *straight* appendages. The genus includes a single species, the appendages of which are described as *incurved*. It may safely be accepted that there is no such genus as *Pleochæta* in nature, *Pleochæta Curtisii*, Sacc. and Speg., being a true *Uncinula*. Finally, S. M. Tracy and B. T. Galloway, in the "Botanical Gazette," Vol. xiii., p. 29, in an article headed "*Uncinula polychæta*, B. & C.," say:—"Although this species has been known for more than ten years it is believed that an attempt to reconcile the differences in published descriptions, with the addition of such facts as have been noted in a recent examination of fresh specimens collected on Sand Creek, five miles east of Starkville, Miss., will be of interest to mycologists." The specimens collected five miles east of Starkville by the last-mentioned authors agree in many points with *Erysiphe polychæta*, B. & C., and may possibly be the same species, but the authors' idea of reconciliation with *Uncinula polychæta*, B. & C. (not "*Uncinula pleochæta*"), is on a par with that of Ellis, and is as follows:—"Berkeley & Curtis," "about 28" probably being a misprint for "about 280." It is curious to note that in every instance where an *Uncinula* has been met with on *Celtis* it has been considered as the *U. polychæta* of B. & C., and that any discrepancy between the characters presented and Berkeley's brief description was due to the author's inaccuracy, whereas in reality there are two species of *Uncinula* on the same species of *Celtis*, the synonymy of which are as follows:—

1. *Uncinula polychæta* (B. & C.), Massee (=*Erysiphe polychæta*, B. & C.), Grev., Vol. iv., p. 159; *Pleochæta Curtisii*, Sacc. & Speg., Fung. Arg. Pug. ii., p. 44; Sacc. Syll., Vol. i., No. 32; Sacc. Addit., No. 32 (in part). *Uncinula polychæta*, Rav. Fung. Carol. Exs., fasc. 4, No. 68.

2. *Uncinula confusa*, Massee (=*Uncinula polychæta*, B. & C.), Grev., Vol. iv., p. 159; *Pleochæta Curtisii*, Sacc. and Speg., Fung. Arg. Pug. ii., p. 44; Sacc. Syll., Vol. i., No. 32; Sacc. Addit. Syll., No. 32 (in part).

As *Erysiphe polychæta*, B. & C., has been shown to be a true *Uncinula* and is the commonest species, in addition to being already known as *Uncinula polychæta*, the original specific name has been retained. As to priority, it is not a matter of dates, but only to standing higher on the same page than *Uncinula polychæta*, B. & C., the specific name of which has been changed as above.

GEORGE MASSEE.

NEW BRITISH FUNGI.

By M. C. Cooke.

(*Continued from p.* 56.)

Puccinia Schræteri, *Pass. Sacc. Syll.* VII., 2579.
On living leaves, &c., of jonquil. C. W. Dod, Esq., Edge Hall, Malpas.

Conisphœria (Melanopsamma) borealis, *Karst.*, var. **minor.**
Perithecia scattered or gregarious, very small, innate at the base, convex above, black, smooth, slightly papillate. Asci cylindrical; sporidia uniseriate, narrowly ellipsoid, 2 guttulate, then faintly uniseptate, hyaline, $6 \times 2\frac{1}{2}$ μ.
On rotten wood. Shere. (*Dr. Capron.*)

Ceratostomella vestita, *Sacc. Syll.* 1550.
Perithecia scattered, subsuperficial, globose, loosely clad with intertwined flexuous septate hairs, naked about the cylindrical ostiolum, which is about equal in length to the diameter of the perithecium, and rugose at the apex. Asci cylindrical, shortly stipitate. Sporidia uniseriate, ellipsoid ($6\text{-}8 \times 4$ μ) continuous, biguttulate, hyaline.
On rotten wood. Shere. (*Dr. Capron.*)

Pleospora Meliloti, *Rabh., Sacc. Syll.* 3727.
var. **Medicaginis,** *Cke. & Mass.*
Sporidia muriform, 5 septate, muriform brown, 40×15 μ.
On stems of *Medicago sativa.* Kew.

Pleospora herbarum, *Pers., Sacc. Syll.* 3730.
var. **Cichorii,** *Cke. & Mass.*
Sporidia 7 septate, muriform, about $40\text{-}43 \times 14\text{-}16$ μ, pale olive.
On stems of *Cichorium intybus.* Kew.

Phoma cyclospora, *Sacc. Syll.* 837.
On *Euphorbia salicifolia.* Kew.

Phoma Barringtoniæ, *Cke. & Mass.*
Epiphyllous, on large irregular glaucous spots. Perithecia convex, papillate, subgregarious, black, covered with the thin shining cuticle. Sporules fusoid-elliptic, with a nucleus at each end, continuous, hyaline, $13\text{-}15 \times 4\text{-}5$ μ.
On living leaves of *Barringtonia speciosa.* Kew.

Diplodina glaucii, *Cke. & Mass.*
Perithecia minute, scattered, globose, black, covered by the epidermis, which is at length pierced by the papillate ostiolum. Sporules elliptical, obtuse, scarcely constricted, uniseptate, hyaline, $12\text{-}13 \times 3$ μ.
On dead stems of *Glaucium fulvum.* Kew.

Mycogone alba, *Letell Champ. t.* 667, *f.* 2.

This mould, which spreads over the whole surface of cultivated mushrooms, is a true *Mycogone*, the conidia of which closely resemble those of *M. rosea*. There is no rosy tint, and it may possibly be referred to Letellier's species, of which there is no description, and the figure is very unsatisfactory. Doubtless an imperfect (conidial) condition of some undescribed *Hypomyces*.

On mushrooms. Wynyard, Stockton-on-Tees. (*H. E. Gribble.*)

Gliocladium agaricinum, *Cke. & Mass.*

Causing the pileus of mushrooms to crack into large frustular scales. Tufts hemispherical, sometimes confluent, pallid, growing white, at first gelatinous. Hyphæ creeping, branched, fertile branches erect, ultimate branchlets verticillate, quaternate, capitulum of conidia subglobose, white. Conidia at first glutinous, subglobose, hyaline, 5-6 μ diam.

On cultivated mushrooms. Leicester.

Bispora pusilla, *Sacc. Syll.* VII., *No.* 1633.

On chips. Kew.

Tubercularia minor, *Link,* forma **Syringæ,** *C. & M.*

Minute, erumpent, horn-coloured, then flesh colour or reddish, shining, gelatinous when moist, stroma readily falling away, when mature, leaving cup-like pits; conidia oblong, straight, rounded at the ends, 10×2 μ. Sporophores simple.

On twigs of lilac. Kew.

Pionnotes Biasolettianum, *Corda Sc.* II., *f.* 14.

Polymorphous or effused, between fleshy and tremelloid, thick, orange. Stroma fleshy, whitish, floccose; hyphæ septate, simple or sparingly branched, fasciculate, stratum of conidia rather thick, gelatinous, orange-red, viscid; conidia fusiform, acuminate at each end, slightly curved, granular within, then obsoletely 2-5 septate, 60-70 $\times$ 4-5 μ.

On wild rose stems. Reading. (*Dr. Carlyle.*)

BRAITHWAITE'S BRITISH MOSS FLORA.

We are very glad to see the first part of the second volume of this invaluable work. Part XI. contains the first part of Grimmiaceæ, and is fully up to all that have preceded it in excellence. The plates, which have now reached to Pl. LIII., are excellent. If we feel any regret—and we cannot help feeling it in common with bryologists—it is that the publication does not proceed more rapidly. On this point we have been assured that no effort has been wanting to secure greater expedition, and that these efforts will not be relaxed. We, who are growing old, sometimes fear that, in the natural course of things, we shall scarcely live to see the end; let us hope that we shall be disappointed.

TWO AUSTRALIAN FUNGI.

By M. C. Cooke.

The following specimens communicated by Baron F. von Mueller.

* **Asterina (Asterella) subcuticulosa,** *Cooke.*

Epiphylla. Peritheciis pelliculosis, applanatis, irregularibus, vel confluentibus, absque mycelio, atris, sublente fuscis. Ascis pyriformibus. Sporidiis elliptico-clavatis, uniseptatis, hyalinis, cellulo superiori latiore (circa 10-12 × 4 μ).

On fading and dead leaves of *Olearia argophylla.* Gippsland. (*Luehmann.*)

* **Xylaria (Xyloglossa) agariciformis,** *Cke. & Mass.*

Capitulum semiglobose (8 mm. to 1 cm. diam.), glaucous, dotted with the black punctiform ostiola, truncate, or depressed, beneath black and sterile, so as to leave a barren black ring round the stem. Stem equal, or a little attenuated downwards, 2-3 mm. thick, 1 inch or more long, straight or flexuous, fuliginous. Asci cylindrical. Sporidia uniseriate, elliptical, rounded, or a little attenuated at the ends, at first binucleate, then opaque and dark brown, 23-25 × 6-8 μ.

On stumps. Eyre's Sandpatch. Great Bight. (*J. D. Baff.*)

HEREFORDSHIRE FLORA.*

After being in the printer's hands for about two years this Flora has at last made its appearance. How we pity the poor Editors and Authors who are at the mercy of local printers. A worthy scene for Dante's "Inferno." Nevertheless, it is welcome at last; whether improved by its vicissitudes it is hardly possible to say. Poor Dr. Bull! Had he been alive to pass through this last experience we fear it would have disturbed his equanimity, if it had not hastened his end. "At Last" was Charles Kingsley's last book, and at last Dr. Bull's long-cherished hope of a Herefordshire Flora is now accomplished. It is a big volume, and a neat one, of which the Woolhope Naturalists' Field Club need not to feel ashamed, for this Club is responsible for the cost of its production.

A volume of 550 pages, and a map, represents a considerable amount of voluntary labour, and the two clergymen whose names appear on the title page accept responsibility for the contents. After the preface comes a long "Definition of the Botanical Districts of Herefordshire," by the Rev. W. H. Purchas, with "Notes on their Geology," by the Rev. W. S. Symonds. Then follows the

* "Flora of Herefordshire." Edited by W. H. Purchas and Augustin Ley. One Vol., 8vo., cloth. Hereford: Jakeman and Carver (for the Woolhope Naturalists' Field Club). 1889.

Flora, with 367 pages devoted to the Phanerogamia, then 75 pages of mosses, 70 pages of catalogue of the Fungi, and some few pages of supplementary matter, and the Indices.

It is neither our province, nor our intention, to express any opinion on the portion devoted to the Phanerogamia, in which 903 species are recorded, inclusive of the Ferns. The mosses, to the number of 283 species, doubtless came under the fatherly care of the Rev. Augustin Ley, and there is little room for doubt that this portion of the work is thoroughly trustworthy. The Fungi, rather a speciality with the Woolhope Club, attain to some 1,097 species, contrasting favourably with the 445 species recorded in the "Flora of Leicestershire" (1886), and the 987 of the "Flora of West Yorkshire" (1888). In this portion the Hymenomycetes were catalogued by M. C. Cooke, from lists and drawings left by the late Dr. Bull, and from notes and drawings made by himself during the period of the various annual forays. The list of Discomycetes was furnished by W. Phillips, F.L.S., whilst C. B. Plowright lent his ready assistance with the Uredines and the Pyrenomycetes. Only one of these sections makes any reasonable approach to completeness, viz., that of the Hymenomycetes. The minute fungi have been only casually recorded, and nothing like a systematic attempt has ever been made to investigate the microscopic fungi of Herefordshire ; consequently, with the exception of the Discomycetes, the lists are most imperfect and incomplete. At the annual forays and exhibitions all the interest has centred in the larger fungi, and this portion may be taken to represent fairly well what has been found and recorded in the county. It may be of interest to compare the number of species of the Hymenomycetes recorded for Herefordshire, namely, 636, with the 499 species recorded for the same order in the "Flora of West Yorkshire," and 299 recorded in the "Flora of Leicestershire." These numbers cannot be compared with those of Epping and Essex generally, since the Essex lists are so far behindhand in publication, notwithstanding that the Field Club has a monthly journal of its own. We fancy it may be taken for granted that Herefordshire stands at the head of all English Counties in the number of species of Agarics which have been found within its borders. It is not surprising that some of these should still remain so identified with the county that they have not been observed elsewhere in the British Isles. Such, for instance, as *Lactarius lilacinus*, found at Sunny Gutter, on one occasion rather freely ; *Hygrophorus erubescens*, from Downton ; *Cortinarius triumphans*, from Dinmore ; *Agaricus* (*Pholiota*) *Cookei*, described by Fries from specimens collected at Dinmore ; *Agaricus* (*Inocybe*) *hæmactus*, B. & C., only found, as yet, at Credinhill; *Agaricus* (*Naucoria*) *rubricatus*, Berk., known only from Holme Lacy ; *Agaricus* (*Hypholoma*) *œdipus*, C., discovered at Clehanger ; not forgetting *Agaricus* (*Pholiota*) *aureus* var. *Herefordiensis* ; and last, but not least, the redoubtable *Strobilomyces strobiliaceus*, so often found within the county.

Presumably it was inevitable that more instances than agreeable should be met with of literal errors in the printing of specific names, notwithstanding the care exercised with a view to preventing it. There are some letters which the ordinary compositor seems to delight in turning the wrong side up, and this persistency is observable here and there.

Taken as a whole, we presume that the present Flora will be accepted as generally satisfactory, notwithstanding the absence of any records of the *Hepaticæ*, Lichens, and the Fresh Water Algæ, the former being particularly remarkable, as they are often collected and studied by bryologists. In the preface these omissions are alluded to in the following terms:—"It is with much regret that we have to omit all account of the Hepaticæ in this Flora. '*Ars longa*,' and though some considerable material has been gathered towards an account of the Herefordshire Hepaticæ, chiefly by the labours of Mr. B. M. Watkins, yet the whole subject remains as yet too incomplete to justify publication. We do not know, beyond the work done as mentioned above by Mr. Lees in the Malvern District, anything has yet been attempted in the County of Hereford as regards Lichens or Algæ."

The general appearance of the work is good, the type clean and clear, and the arrangement suitable for ready reference. We may have seen better paper employed, even for a County Flora, but that is a matter of detail. Certainly it is to be hoped that the Woolhope Club will not be pecuniary sufferers by this praiseworthy effort, and that it will soon be reimbursed the whole outlay in the production of this volume.

CHAMPIGNONS DE LA FRANCE.

We approach a somewhat unwelcome task in noticing, rather critically, the later Plates issued by Capt. Lucand, in his large quarto "Figures peintes de Champignons de la France," which, as we have before observed, are intended as a continuation of the celebrated Plates of "Bulliard's Champignons de la France." The present work has now reached its eleventh part and the 275th Plate, and costs no less than £16 10s. 0d., which is *double* the published price of the 292 Plates given in the first two volumes of another work on "The Fungi of Britain," published in this country. Although the paper is larger in the French work, the *paper* is all that is furnished for the extra money. Undoubtedly there is no advantage given in artistic execution, nor do we think in scientific accuracy, but on these points our opinion may be supposed to be a prejudiced one.

Let us, however, confine ourselves to the 25 Plates included in this present Part XI., commencing with Plate 251, *Lepiota naucina*, Fries. Beneath this Plate there are synonyms given, or presumed synonyms, which are rather extraordinary, and

somewhat shock our insular prejudices. "*Agaricus pudicus*, Bull., t. 597; *Pholiota*, of Fries; *Ag. Schulzeri*, Kalchb., t. 2, f. 2."

As to the identity of *Ag. Schulzeri*, Kalchb., with *Ag. naucinus*, Fries, we will not presume to decide, as we have never seen *Ag. Schulzeri;* but, supposing it to be true that this species has ovate spores, whilst *Ag. naucinus* has globose spores, then the identity must be open to question. Far more widely distinct must be *Ag. pudicus*, Bull., and *Ag. naucinus*, Fr. Most mycologists, except the gallant Captain, recognize some points of difference between the elliptical brown spores of *Ag.* (*Pholiota*) *pudicus*, and the globose white spores of *Ag.* (*Lepiota*) *naucinus*. It comes as quite a revelation that the synonyms of some of the *Leucospori* must be sought amongst the *Dermini*. This is cutting down "spore-classification" with a vengeance. Adverting to the figures, given on Plate 251, it is rather singular that the longitudinal section exhibits the stem as *solid*, whilst the transverse section shows it *hollow*. Are both equally accurate?

The next Plate, 252, is devoted to *Tricholoma pancolum*, Fries, whilst the romantic letter-press indicates as synonyms *Ag. nimbatus*, Batsch., f. 65, and *Tricholoma ectypum*, Gillet, p. 124, and of Secretan, but *not* the *Agaricus ectypus*, Fries, which should have been made clear. May it not be taken for granted that it is prudent to ignore such synonymy altogether, and just accept the Plates for what they are worth?

Russula depallens, on Plate 261, is not exactly the sort of *Russula depallens* that we have been accustomed to see. We like to note the distinctly rugose grey stem, which seems so persistent in nature, but requires a very strong lens to detect in the figures. Nevertheless "variety is charming."

Of all the hallucinations with which many of the French mycologists seem to be infected, there is no one so persistent as that figured on Plate 272 as *Cortinarius torvus*, Fries. Surely the figures given by Fries, in his Icones (t. 157, Fig. 1), should have convinced Dr. Quelet that his notion of *Cortinarius torvus* is no longer tenable. Yet the same ghost arises from the grave in this Plate, figured from specimens communicated by Quelet. The Rev. M. J. Berkeley long ago declared the French drawings of this species (those by Quelet, Boudier, and others) to be none other than his own, *C. anfractus*, which was *not* the *C. anfractus*. Fries, and has been figured in Cooke's Illustrations, Plate 707, under the name of *Cortinarius Berkeleyi*. It seems to be an absurd manifestation of obstinacy to persist in calling a species by a name with which it has no immediate affinity, and to which it is not entitled. If for nothing else, the dark-coloured flesh of *Cort. torvus*, as exhibited in Fries' own figures, should raise a suspicion of this impostor, with white flesh, to say nothing of the volvate patches on the pileus. Whatever else it may be, no mycologist in his senses could contend that Plate 272 represents the *Cortinarius torvus*, of Fries.

Generally, as applied to all the Plates, we should like to discover the value of a series of symmetrically arranged little bodies, which may be supposed to represent spores, but which, if drawn to any scale at all, the scale is not revealed, and very seldom is any intimation given of their dimensions.

It is much to be regretted that our author did not from the first obtain the assistance of a good practical man in the art of delineation, to have advised with him, and assisted him in his work. There is no doubt that a large amount of labour and experience has not been turned to the best account, and that a little advice might have converted a very mediocre into a very excellent work. It requires but a very little elementary knowledge of illustrative art to recognize the failings in these Plates, and at the same time to marvel that the little artistic help was not obtained which would have spared the credit of the author, and augmented the sale of his work, which, in all conscience, is expensive enough for a much better book.

SYNOPSIS PYRENOMYCETUM.

(*Continued from p.* 52.)

Fam. 13. ENDOXYLEÆ (Immersæ, *Fr.*). Perithecia immersa, latentia, simplicia, collo brevi erumpente.

Gen. 1. **ENDOXYLA,** *Fckl.* Stroma obsoletum ligneum, sporidia allantoidea, dilute fusca.

3918. parallela, *Fr.* ... 672
3919. operculata, *A. & S.* 673
3920. macrostoma, *Fckl.* 674
3921. populi, *Rom.* ... 6284

Gen. 2. **XYLOSPHÆRIA,** *Cooke Grev.* vii., 86. Perithecia innata, immersa, lignicola. Sporidia subelliptica, continua, vel septata, fusca.

* Anthostoma. *Sporidia continua, fusca.*

3922. melanotes, *B. & Br.* 1097
= *Schmidtii*, Nke.
var. longiascum, *Berl.*
3923. endoxyloides, *Mont.* 7436
3924. tomentosum, *Ehr.* 1098
3925. ferrugineum, *Nke.* 1099
3926. venetum, *Sacc.* ... 1100
3927. urophorum, *S. & S.* 1101
3928. areolatum, *Nke.* ... 1103
3929. inquinans, *Nke.* ... 1106
3930. italicum, *S. & S.* ... 1107
3931. intermedium, *Nke.* 1108
3932. polynesia, *B. & C.* 1110
3933. chronostomum, *Sp.* 6329
3934. carbonescens, *Nke.* 1111
3935. anceps. *S. & R.* ... 1115
3936. tuberculosa, *Schwz.* 4368
3937. defossum, *D.R. & M.* 1117
3938. cubiculare, *Fr.* ... 1118
3939. ostropoides, *Rehm.* 1131
3940. syciospermum, *D.R. & M.* 1119
3941. sustentum, *Plow.* 1120
3942. gigaspora, *Cke. & Hk.* 6531

3943. oxyacanthæ, *M.* ... 1121
3944. xylostei, *Pers.* ... 1122
3945. alpigena, *Fckl.* ... 1123
3946. hiascens, *Fr.* ... 1125
3947. decipiens, *D.C.* ... 1126
3948. scoriadea, *Fr.* ... 1127
3949. mortuosum, *Ell.*... 5933
3950. ambiguum, *Fab.*... 5934
3951. infernale, *Fab.* ... 5935
3952. saprophilum, *Ell. & Ev.*
3953. picacea, *C. & E.* ... 1093
3954. brachystoma, *Ell. & Ev.* 6325

** Phæosperma. *Sporidia didyma fusca.*

3955. anserina, *Pers.* ... 2842
3956. cariei, *Sacc.* ... 2843
3957. Saccardiana, *Sp.* 2844
3958. apiculata, *Curr.* ... 2845
3959. hysterioides, *Rehm.* 2850
3960. Wellingtoniæ, *C. & H.* 6615
3961. sepulta, *M.* ... 2718
3962. botulispora, *M.* ... 2719
3963. dichroa, *D. R. & M.* 2730
3964. fibricola, *S.* ... 2748
3965. tumulata, *Cke.* ... 2751
3966. diplasia, *D. R. & M.* 2758
3967. anceps, *S. & B.* ... 6616
3968. rosmarinæ, *Cast. Cat.* 165

⁂ Kalmusia. *Sporidia* 3-*multiseptata, fusca.*

3969. ebuli, *Nsl.* ... 3373
3970. dealbata, *S.* ... 3374
3971. hemitapha, *B. & Br.* 3375
3972. hypotephra, *B. & Br.* 3377
3973. inusta, *Cooke* ... 3378
3974. surrecta, *Cooke* ... 3380
3975. rubro-nigra, *Cke. Trans. R. S. Edin.*
3976. Passerinii, *Rabh.* 3376
3977. pachyascus, *C. & E.* 3379

Gen. 3. **THYRIDIUM.** Stroma effusum, ligneum. *Sporidia muriformia.*

3978. Rousselianum, *S. & S.* 3988
3979. pulchellum, *S. & S.* 3989
3980. quilmense, *Sp.* ... 3990
3981. lividum, *Pers.* ... 3991
3982. cingulatum, *M.* ... 3992
3983. ambleium, *C. & E.* 3993
3984. colliculus, *Cke. Trans. R. S. Edin.*
3985. garryæ, *C. & H.*... 7122
3986. personatum, *C. & H.* 7124
3987. antiquum, *Ell & Ev.* 7123

Immersæ dubiæ.

3988. lævigatum, *Schwz.* 4354
3989. inundatorum, *Sch.* 4355

Fam. 14. OBTECTÆ. *Fr. Sum. Veg. Scan.* Perithecia corticola, innata, tecta.

Gen. 1. **MASSARIA**, *Fr.* Sporidia matricem plerumque fœdantia, muco hyalino obvoluta.

* Massariella. *Sporidia biloculari a, fuliginea.*

3990. bufonia, *B. & Br.* 2705
3991. vibratilis, *Fckl.* ... 2706
3992. australis, *Cke.* ... 2707
3993. sudans, *B. & C.* ... 2708
3994. Curreyi, *Tul.* ... 2709
3995. syconophila, *Schulz.* 2710
3996. scoriadea, *Fr.* ... 1127
3997. bispora, *Curt.*
3998. seriata, *Cke.*
3999. didymopsis, *Mont.* 7469

** EUMASSARIA *Sporidia 2-pluriseptata, fusca.*

4000. fœdans, *Fr.* ... 2852 = *amblyospora*, B. & Br.
4001. loricata, *Tul.* ... 2853
4002. æsculi, *Tul.* ... 2854
4003. pupula, *Fr.* ... 2855
4004. pyxidata, *Reiss.* ... 2856
4005. urceolata, *Wallr.*... 2857
4006. pyri, *Oth.*... ... 2858
4007. corni, *Fr. & M.* ... 2859
4008. gigaspora, *Fckl.* ... 2860
4009. inquinans, *Tode.* ... 2861
4010. callispora, *Sacc.* ... 2862
4011. ulmi, *Fckl.* ... 2863
4012. fagi, *Fckl.* ... 2864
4013. micacea, *Kunze.* ... 6646
4014. epileuca, *B. & C.* 2865
4015. platani, *Ces.* ... 2866
4016. carpinicola, *Tul.*... 2867
4017. argus, *B. & Br.* ... 2868
4018. Niessleana, *Rehm.* 2869
4019. atroinquinans, *B. & C.* 2870
4020. rhyponta, *M.* ... 2871
4021. semitecta, *B. & C.* 2872
4022. Antoniæ, *Fab.* ... 2873
4023. stipata, *Fckl.* ... 2874
4024. alpina, *S. & S.* ... 2875
4025. marginata, *Fckl.* 2876
4026. Fuckelii, *Ntke.* ... 2877
4027. vomitoria, *B. & C.* 2878
4028. hirta, *Fr.*... ... 2879
4029. macrospora, *Desm.* 2880
4030. Hoffmanni, *Fr.* ... 2881
4031. pulchra, *Hark.* ... 6644
4032. distincta (*Schwz.*), *Cke.* 4359
4033. olivacea (*S.*), *Cke.* 4353 = *olivaceo-hirta*, Schwz.
4034. occulta, *Rom.* ... 6642
4035. cleistotheca, *Hark.* 6643
4036. umbrosa, *Niessl.* ... 6645

Species dubiæ.

4037. Gerardi, *Cke.* ... 2882
4038. squalens, *Fr.* ... 2883
4039. crypta, *Fr.* ... 2884
4040. protusa, *Fr.* ... 2885
4041. succincta, *Wallr.* 2886
4042. maculata, *Wallr.*... 2887
4043. conspurcata, *Wallr.* 2888
4044. circumscissa, *P.* ... 2889

*** MASSARINA. *Sporidia bi-v. pluriseptata hyalina.*

4045. eburnea, *Tul.* ... 3390
var. salicis, *Karst.* 1017
4046. eburnoides, *Sacc.* 3391
4047. tiliæ, *Ph. & Pl.* ... 3392
4048. microcarpa, *Fckl.* 3393
4049. coryli, *Karst.* ... 3394
4050. corni, *Fckl.* ... 3395
4051. rubi, *Fckl.* ... 3396
4052. lunulata, *Tul.* ... 3397
4053. polymorpha, *Rehm.* 3398
4054. Marcucciana, *Awd.* 3399
4055. penicillata, *Sacc.* 3400

*** PLEOMASSARIA. *Sporidia muriformia.*

† Genuina. *Sporidia muco involuta.*

4056. siparia, *B. & Br.* 3708
4057. holoschista, *B. & Br.* 3709
4058. carpini, *Fckl.* ... 3710

†† Karstenula. *Sporidia muco destituta.*

4059. rhodostoma, *A. & S.* 3711
4060. varians, *Hazs.* ... 3712
4061. dumorum, *Mont.*... 7498

GEN. 2. **ENCHNOA,** *Fr.* Perithecia pilosa; muco destituta. *Sporidia botuliformia, hyalina v. olivacea.*

4062. infernalis, *Kze. & Fr.* 372
4063. floccosa, *Karst.* ... 373
4064. lanata, *Fr.* ... 374
4065. Friesii, *Fckl.* ... 375
4066. alniella, *Karst.* ... 376

Gen. 3. **CRYPTOSPHÆRIA,** *Grev.* Perithecia densiuscule gregaria.

* *Sporidia allantoidea.*

4067. millepunctata, *Grev.* 675 =*pruinosa*, Fr.
4068. populina, *P.* ... 676
4069. vicinula, *Nyl.* ... 677
4070. myriocarpa, *Nke.* 678
4071. sepulta, *Nke.* ... 679
4072. ocellata, *Fr.* ... 680
4073. rimulosa, *Pass.* ... 681
4074. ligniota, *Fr.* ... 682
4075. rubrocincta, *Schwz.* 683
4076. fissicola, *C. & E.*... 684
4077. vexata, *C. & E.* ... 685
4078. inordinata, *B. & C.* 686
4079. secreta, *C. & E.* ... 688

** Cryptosphærella. *Myriospora, sporidia allantoidea.*

4080. Nitschkei, *Awd.* ... 689

Gen. 4. **PHYSALOSPORA.** Perithecia solidiuscula, sparsa, tecta.

* *Sporidia ovoidea v. oblonga, hyalina.*

4081. corni, *Sacc.* ... 1659
4082. gregaria, *Sacc.* ... 1660
4083. uvæsarmenti, *Cke.* 6016
4084. rosicola, *Fckl.* ... 1662
4085. rhodina, *B. & C.*...
4086. pustulata, *Sacc.* ... 1663
4087. euganea, *Sacc.* ... 1665
4088. pertecta, *Cke.* ... 1675
4089. citrispora, *B. & Br.* 1677
4090. salicis, *Fckl.* ... 1678
4091. cupressi, *B. & C.* 1679
4092. gelsemiata, *Cke.*... 1680
4093. ceanothina, *Peck.* 1692
4094. erratica, *C. & E.*... 1696
4095. subsolitaria, *Schwz.* 1701
4096. eriostega, *C. & E.* 1702
4097. entaxia, *C. & E.* ... 1703
4098. crustulata, *Lev.* ... 1706
4099. idæi, *Fckl.* ... 1710
4100. viscosa, *C. & E.* ... 1712
4101. thyoidea. *C. & E.* 1713
4102. ? microtheca, *C. & E.* 1714
4103. subsimplex, *Schw.* 1718
4104. callunæ, *Not.* ... 1721
4105. nigropunctata, *Rom. Bot. Not.* 1889.

** Urospora. *Sporidia caudata.*

4106. cocciferæ, *Fab.* ... 1732

*** Ditopella. *Sporidia numerosa, oblonga v. fusoidea.*

4107. fusispora, *Not.* ... 1735
4108. cryptosphæria, *Fckl.* 1736
4109. farcta, *B. & Br.* ... 1737
4110. Vizeana, *S. & Sp.*... 1738
4111. Hosackiæ, *C. & H.* 1739

Gen. 5. **ENDOPHLÆA,** *Fr.* Corticola, sparsa, tecta. Sporidia uni-vel multiseptata.

* Didymella. *Sporidia subellipsoidea, uniseptata, hyalina.*

4112. cladophila, *Nsl.* ... 2126
4113. genistæ, *Fckl.* ... 2127
4114. glomerulata, *Fckl.* 2128
4115. mesnieriana, *Rehm.* 2129
4116. applanata, *Nsl.* ... 2130
4117. sphærellula, *Pech.* 2131
4118. vexata, *Sacc.* ... 2132
4119. corni, *Sow.* ... 2133
4120. Barbieri, *West.* ... 2134
4121. analepta, *Ach.* ... 2135
4122. Picconii, *Not.* ... 2136
4123. lapponum, *Not.* ... 2137

4124. purpurearum, *Awd.* 2138
4125. nummularia, *Bagn.* 2139
4126. recedens, *C. & H.* 2140
4127. segna, *C. & E.* ... 2141
4128. castanella, *C. & E.* 2142
4129. celtidis, *B. & C.* ... 2144
4130. cadubrina, *Speg.*... 2145
4131. cadubriæ, *Sacc.* ... 2146
4132. diaporthoides, *Sacc.* 2147
4133. oleandri, *D. R. & M.* 2149
4134. sepincolæformis, *Not.* 2150
4135. strobiligena, *Desm.* 2152
4136. fusispora, *Duby. in Rabh. H. M.* 1132.
4137. juniperina, *Duby. in Rabh. H. M.* 1833.
4138. Rauii, *Ell. & Ev.*, *Bull. Torr. B. Club*, x., 90.
4139. uberina, *Mont.* ... 2189

** Chorostate. *Sporidia subfusoidea*, 1-*septata*, *hyalina*.

4140. salicella, *Fr.* ... 2413
4141. sphingiophora, *Oud.* 2414

*** Metasphæria. *Sporidiis multiseptatis*, *hyalinis*.

† *Sporidia* 2-4 *septata*.

4142. persistens, *B. & Br.* 3430
4143. anisometra, *C. & H.* 3431
4144. leiostega, *Ell.* ... 3432
4145. rothomagensis, *Roum.* 7018
4146. sepincola, *Fr.* ... 3433
4147. pampinea, *S.* ... 3434
4148. peruviana, *Cke.* ... 3435
4149. Muggenburgi, *S.*... 3436
4150. chætostoma, *S.* ... 3437
4151. socia, *S.* 3438
4152. sublanosa, *Cke.* ... 3439
4153. Fiedleri, *Nsl.* ... 3440
4154. depressa, *Fckl.* ... 3441
4155. corticola, *Fckl.* ... 3442
4156. cinerea, *Fckl.* ... 3443
4157. apiculata, *Wallr.* 3444
4158. squamata, *C. & E.* 3445
4159. Ashwelliana, *Curr.* 3446
4160. plagarum, *C. & H.* 7025

†† *Sporidia* 5-8 *septata*.

4161. staphylina, *Peck.* 3447
4162. Cerletti, *Sp.* ... 3448
4163. subcutanea, *C. & E.* 3449
4164. aulica, *C. & E.* ... 3450
4165. brachytheca, *B. & C.* 3451
4166. scalaris, *D. R. & M.* 3452
4167. vitis, *Schulz.* ... 3638

*** Ceriospora. *Sporidia fusoidea*, 1-3 *septata*, *mucronata*.

4168. Dubyi, *Nsl.* ... 3519
4169. xantha, *S.* ... 3520
4170. bicalcarata, *Ces.*... 3523

**** Saccardoella. *Sporidia* 20-30 *septata*.

4171. montellica, *Sp.* ... 3537

Gen. 6. **OPHIOBOLUS.** Corticolæ, tectæ. *Sporidia filiformia*.

4172. fruticum, *R. & D.* 4056 = *ononidis*, Auers.
4173. exilis, *Ces.* ... 4057
4174. terebinthi, *Fab.* ... 4058
4175. longisporus, *Curr.* 4059
4176. sarmenti, *Pass.* ... 4060
4177. periclymeni, *Cr.*... 4061
4178. paulowniæ, *Roum. F. Gall.*

Gen. 7. **ANTHOSTOMA.** Sporidia continua, fusca.

* Anthostomella. *Sporidia continua, fusca.*

4179. clypeata, *Not.* ... 1051
4180. conorum, *Fckl.* ... 1052
4181. pholidigena, *Ell.*... 6320
4182. nitidula, *Sacc.* ... 1053
4183. limitata, *Sacc.* ... 1055
4184. olearum, *S. & S.*... 1056
4185. ostiolata, *Ell. & Ev.* 6322
4186. intermedia, *Sacc.* 1057
4187. unedonis, *Not.* ... 1058
4188. corni, *Fab.* ... 5927
4189. scopariæ, *Fab.* ... 5928
4190. ilicis, *Fab.* ... 5929
4191. helichrysi, *Fab.* ... 5930
4192. Picconiana, *Not.*... 5931
4193. oreodaphnes, *C. & H.* 6321

** Entosordaria. *Sporidia appendiculate.*

4194. perfidiosa, *Not.* ... 1062
4195. Poetschii, *Nsl.* ... 1063
4196. appendiculosa, *B. & Br.* 1064
4197. umbrinella, *Not.* ... 1066
4198. closterium, *B. & C.* 1067
4199. Rehmii, *Thum.* ... 1075

*** Desciscentes.

4200. genistæ, *Crouan.* 1077
4201. abdita, *B. & C.* ... 1078
4202. cytisi, *Fckl.* ... 1079
4203. loniceræ, *Fckl.* ... 1080
4204. paliuri, *Fab.* ... 1086
4205. delitescens, *Not.* ... 1087
4206. nobilis, *S. & S.* ... 1088
4207. picacea, *C. & E.*... 1093

**** Anthostoma. Pseudo-stromatica, *sporidia continua.*

4208. anceps, *S & R.* ... 1115
4209. syciospermum, *D. R. & M.* ... 1119
4210. oxyacanthæ, *M.* ... 1121
4211. xylostei, *P.* ... 1122
4212. alpigenum, *Fckl.* 1123
4213. hederæ, *Fckl.* ... 1124
4214. scoriadeum, *Fr.* ... 1127

Gen. 8. **DIDYMOSPHÆRIA.** Sporidia didyma, fuliginea.

* *Perithecia membranacea.*

4215. conoidella, *S. & B.* 6573
4216. oxycedri, *Fab.* ... 2653
4217. scabella, *Quel.* ... 7562
4218. bacchans, *Pass.* ... 2654
4219. rhamni, *Fab.* ... 2655
4220. trivialis, *B. & Br.* 2658
4221. sarmenti, *C. & H.* 6574
4222. vitis, *Fab.* ... 2659
4223. cerasorum, *Fr.* ... 2660
4224. incarcerati, *Desm.* 2661
4225. genistæ, *Fckl.* ... 2662
4226. celata, *Curr.* ... 2663
4227. dochmia, *B. & Br.* 2664
4228. permutata, *Sacc.*... 2665
4229. gregaria, *Speg.* ... 2666
4230. rubifruticosi, *Cr.* 2667
4231. betulæ, *Nesl.* ... 2668
4232. massarioides, *Sacc.* 6110
4233. lycii, *Kalch.* ... 6116
4234. cupula, *Ell.* 6112, 6581
4235. ceanothi, *C. & H.* 6587
4236. sarmentorum, *Nsl. Œst. Bot. Zeit.* (1875)

** Microthelia. *Circa ostiolum nigrificata.*

4237. epidermidis, *Fr.* ... 2677
4238. albescens, *Nsl.* ... 2680
4239. diplospora, *Cke.* ... 2681
4240. loniceræ, *Sacc.* ... 2682
4241. opulenta, *Not.* ... 2684
4242. spartii, *Cast.* ... 2687
4243. syringæ, *Fab.* ... 2688
4244. futilis, *B. & Br.* ... 2689

4245. nitidula, *Sacc.* ... 2690
4246. socialis, *Sacc.* ... 2691
4247. oblitescens, *B. & Br.* 2692
4248. acerina, *Rehm.* ... 2693
4249. pulchella, *S. & S.* 2694
4250. grumata, *Cke.* ... 2695
4251. anserina, *B. & Br.*

⁂ Dubiæ.

4252. micula, *Flot.* ... 2699
4253. Wallrothii, *Hepp.* 2700
4254. atomaria, *Korb.* ... 2701
4255. analeptoides, *Bagb.* 2702
4256. grandiuscula, *Anzi.* 2703
4257. confusa, *Garod.* ... 2704

⁂ Amphisphæria. *Perithecia carbonacea.*

4258. sepulta, *Mont.* ... 2717
4259. dichroa, *D. R. & M.* 2730
4260. lamprostoma, *Pass.* 7471
4261. Eduardi, *Pass.* ... 7472
4262. megalosperma, *M.* 2739
4263. sapinea (*Fr.*), *Karst. Exs.* 880
4264. atrogrisea, *C. & P.*

Gen. 9. **LEPTOSPHÆRIA.** Sporidia pluriseptata.

* Genuina. Perithecia nec clypeata.

4265. fusispora, *Nsl.* ... 2013
4266. lusitanica, *Thum.* 2014
4267. phiala, *D. R. & M.* 2016
4268. prætermissa, *K.* ... 2944
4269. abbreviata, *Cke.* ... 2945
4270. Thomasiana, *S. & R.* 6660
4271. tamaricis, *Grev.* ... 2946
4272. ribis, *Karst.* ... 6661
4273. ramulicola, *Peck.* 2947
4274. anceps, *Sacc.* ... 2948
4275. tephrosiæ, *C. & E.* 2949
4276. platanicola, *Howe* 6130
4277. vitis, *Cast.* ... 2950
4278. inspersa, *Schw.* ... 2951
4279. Hazslinszkii, *Sacc.* 2952
4280. cladophila, *Schrot.* 2953
4281. Cookei, *Pir.* ... 2954
4282. Gibelliana, *Pir.* ... 2955
4283. vitigena, *Sacc.* ... 2956
4284. avellanæ, *Fab.* ... 2957
4285. coniothyrium, *Sacc.* 2958
4286. fuscella, *B. & Br.* 2959
4287. massariella, *S. & Sp.* 2960
4288. platycarpa, *Sacc.* 2961
4289. pampini, *Thum.* ... 2962
4290. vagabunda, *Sacc.* 2963
4291. consimilis, *E. & E.* 6670
4292. ceanothi, *C. & H.* 6662
4293. rubrotincta, *E. & E.* 6663
4294. Gillotiana, *S. & R.* 6664
4295. californica, *C. & H.* 6665
4296. odora, *C. & H.* ... 6666
4297. ericæ, *Fr.* ... 4380
4298. fallax, *Berl.* ... 7481
4299. Lindigii, *Cke.*
4300. Baggei, *Auers.* ... 2979
4301. sicula, *Sacc.* ... 2980
4302. appendiculata, *Pir.* 2993
4303. Saccardiana, *Fab.* 3003
4304. Castagnei, *D. R. & M.* 3005
4305. petiolicola, *Sacc.* ... 3017

* Clypeosphæria. Perithecia clypeata.

4306. Notarisii, *Fckl.* ... 3189
4307. mamillana, *Fr.* ... 3190
4308. limitata, *Pers.* ... 3191
4309. osculanda, *Pr.* ... 3192
4310. sabaligera, *B. & C.* 3193
4311. hendersoniæ, *Ellis* 3149

⁂ Melanomma. Perithecia sub-ecorticata.

4312. hippophaes, *Fab.* 3257
4313. Martinianum, *Linds.* 6141
4314. rhododendri, *Rehm.* 3260

GEN. 10. **DELACOUREA.** Sporidia muriformia, fusca.

* PLEOSPORA. *Asci octospori. Sporidia ecaudata.*

4315. Saccardiana, *Roum.* 3755
4316. sambuci, *Plow.* ... 3756
4317. orbicularis, *Auers.* 3757
4318. clematidis, *Fckl.*... 3758
4319. eustegia, *Cke.* ... 3759
4320. ephedræ, *Fab.* ... 3760
4321. collaltina, *S. & S.* 3761
4322. Martianoffiana, *Thum.* 3762
4323. Gilletiana, *Sacc.*... 3763
4324. Spegazziniana, *Sacc.* 3764
4325. laricina, *Rehm.* ... 3765
4326. vitis, *Catt.* ... 3766
4327. cytisi, *Fckl.* ... 3767
4328. thuridonta, *C. & E.* 3768
4329. lichenalis, *Peck.* ... 3769
4330. gummipara, *Oud.* 7499
4331. samaræ, *Fckl.*. ... 3785

** DELACOUREA. *Sporidia hyalino-caudata.*

4332. insignis, *Fab.* ... 3871

*** JULELLIA. *Asci* 1-2 *spori.*

4333. buxi, *Fab.* ... 3873
4334. monosperma, *Peck.* 3874

Physalospora rhodina, *Berk. & Curt. in Curtis Catalogue, p.* 148.

Gregaria, tecta. Peritheciis subglobosis, minimis, atris, ostiolis erumpentibus. Ascis clavatis, octosporis. Sporidiis sublanceolatis, continuis, hyalinis (03-035 × 01 mm.).

On branches of *Rosa rubiginosa.* Carolina, U.S.

Didymosphæria (Amphisphæria) atro-grisea. *Cke. & Peck.*

Peritheciis sparsis, convexis, in cortice immersis, cuticulo griseo tectis, demum ostiolo atro erumpentibus. Ascis cylindraceis, octosporis. Sporidiis uniserialibus, ellipticis, uniseptatis, fuscis (·015 × ·008 mm.).

On bark of *Quercus alba.* New York, U.S. (*Peck*, No. 3.) Poughkeepsie. (*Gerard*, No. 1.)

Although under the impression that this species was described 10 or 12 years ago, we find no reference to the description.

Massaria (Massariella) seriata, *Cooke.*

Peritheciis depressiusculis, majusculis, seriato-dispositis. peridermio tectis, demum fissuratis. Ascis clavatis. Sporidiis ellipticis, 60 × 18-20 μ, uniseptatis, medio constrictis, fuscis. cellulis æqualibus, episporio crasso, hyalino obvolutis.

On branches of *Carya.* S. Carolina (*Rav.*, 1763).

Massaria distincta, *Cke.* **Sphæria distincta,** *Schwein. Amer. Bor., No.* 1655, *Sacc. Syll.* 4359.

Sporidiis biserialibus, 5-septatis, fuscis, 70-80 × 16-18 μ, medio constrictis, muco hyalino primo obvolutis.

Massaria olivacea, *Cooke.* **Sphæria olivaceo-hirta,** *Schwein. Amer. Bor., No.* 1656, *Sacc. Syll. No.* 4353.

Sporidiis biserialibus, lanceolatis, 3-5 septatis, fuscis (50-60 × 12-16 μ), primitus ocellato nucleatis, medio-constrictis.

Massaria (Massariella) scoriadea, *Fr.* **Anthostoma scoriadeum,** *Sacc. Syll.* 1127.

Sporidiis ellipticis, uniseptatis, 70×23 μ, cellulo superiori majusculo, medio constricto, episporio crasso, hyalino. *Ex. Fries S. S.* 344.

Undoubtedly the authentic specimen we have from Fries answers in all points to this section of the genus *Massaria.*

Massaria (Massariella) bispora, *Curtis Catalogue and Herb.*

Peritheciis corticolis, subgloboso-depressis, tectis, subsparsis, ostiolo peridermium perforante matrice sporis inquinantibus. Ascis clavatis. Sporidiis ellipticis, uniseptatis, fuscis, 45×18-20 μ, cellulis æqualibus, medio constrictis, muco hyalino obvolutis.

On back of *Acer.* (*Dr. Curtis.*)

Kansas Fungi.—Kellerman and Swingle have issued the first fascicle of their specimens of Kansas Fungi, consisting of 25 species, for the sum of one dollar and a quarter. This series it is proposed to confine to select species, which are either new, hitherto undistributed, or in some respect especially interesting. The following contents of the first fascicle will indicate the scope of the issue.

1. *Æcidium Æsculi,* E. & K.
2. *Æcidium Dicentræ,* Trelease.
3. *Ceratophorum uncinatum* (Clinton), Sacc.
4. *Cercospora Cucurbitæ,* E. & E.
5. *Cercospora Desmanthi,* E. & K.
6. *Cercospora lateritia,* Ell. & Halsted.
7. *Cercospora seminalis,* E. & E.
8. *Glœosporium apocryptum,* E. & E.
9. *Glœosporium decipiens,* E. & E.
10. *Melasmia Gleditschiæ,* E. & E.
11. *Microsphæra quercina* (Schw.) Burrill.
12. *Peronospora Arthuri,* Farlow.
13. *Peronospora Corydalis,* De Bary.
14. *Phragmidium speciosum,* Fr.
15. *Puccinia emaculata,* Schw.
16. *Puccinia Schedonnardi,* Kell. & Sw.
17. *Puccinia* (*Leptopuccinia*) *Xanthii,* Schw.
18. *Ramularia Virgaureæ,* Thuem.
19. *Ræstelia pyrata* (Schw.) Thaxter.
20. *Scolecotrichum maculicola,* E. & K.
21. *Septoria aryophylla,* E. & K.
22. *Septoria Specularіæ,* B. & C.
23. *Sphærotheca phytoptophila,* Kell. & Sw.
24. *Uredo Quercus,* Brondeau.
25. *Ustilago Zeæ Mays* (DC.), Winter.

COOKE HERBARIUM.

The large herbarium of Fungi transferred by M. C. Cooke to the Royal Herbarium at Kew, is now for the most part incorporated with the National collection. The total number of specimens reach to 46,000, being nearly double that of the Berkeley Herbarium, and these, approximately, represent:—

Hymenomycetes	11,000
Gasteromycetes and Myxogastres ...	2,000
Ustilagines and Uredines	6,000
Discomycetes	6,000
Pyrenomycetes	12,000
Incompletæ	9,000

The number of species has not been calculated, a large number of which are types, and others as important as types; such, for instance, are the individual specimens used in the illustration of "Mycographia." The entire collection is a most valuable one, and has fitly become national property, containing as it does contributions from most of the mycologists of the past forty years, Berkeley, Broome, Bloxam, Cesati, Currey, Curtis, De Notaris, Duby, Ellis, Fries, Kalchbrenner, Leveille, Montagne, Peck, Ravenal, Rabenhorst, Westendorp, Winter, &c., &c.

WHAT IS LICHENOPSIS?

By M. C. Cooke.

Schweinitz described and figured in his "Fungi Americani Boreali" a fungus which he there named *Lichenopsis sphæroboloides*, and, upon the faith of this description and its illustrative figures, Prof. Saccardo has, in his "Sylloge" (Vol. iii., p. 442), included it in *Sphæropsideæ*. This is the first interpretation of the genus.

In the Berkeley Herbarium there is a very good specimen of this fungus, contributed by Schweinitz himself, which accords very well with the description externally, and also internally to a certain extent, but not entirely, since this is a *Discomycete*, differing very little, if at all, from *Schmitzomia;* and this is the second interpretation accepted by Berkeley, and Curtis, and also, we fancy, by most of the American botanists.

The third interpretation appears to be an accidental one. It is based on specimens from S. Carolina in the Berkeley Herbarium, and included under *Lichenopsis sphæroboloides*, with which it agrees in external appearance and habit, but differs in fructification. Which of these is the true *Lichenopsis?* There certainly seems to be a strong presumption in favour of the authentic specimen derived from Schweinitz. It is erumpent, with the appearance of a *Stictis*, the hymenium

soon falling out and leaving a cup-shaped hollow. This hymenium is a compact mass of long cylindrical asci, mixed with paraphyses, the tips of which are pyriform and coloured. The sporidia are filiform, the length of the ascus (150-160 μ) multiseptate and hyaline, as in *Schmitzomia*. Making allowance for the inferior microscopes at the time when this description was constructed, as well as the slight care bestowed upon microscopical characters, it is not unreasonable to suppose that the coloured tips of the paraphyses were interpreted by Schweinitz as the spores, and the septate hyaline sporidia as the long septate basidia. This view is strengthened by a comparison of the figures, given with the description, and the fructification of the Schweinitzian specimen. No one has seen a specimen corresponding with the description as interpreted by Saccardo; and yet the species, as represented by the specimen alluded to, has several times been found in the United States. We infer, therefore, that *Lichenopsis sphæroboloides* is the Stictiform Discomycete published in Ravenal's "Carolina Fungi" (iii., No. 72), resembling, if not congeneric with *Schmitzomia*. And, further, that the description drawn up by Schweinitz was imperfect and misleading through a wrong interpretation of the facts. Hence the genus *Lichenopsis*, as a genus of Sphæropsoid Fungi, is untenable, and should be regarded as a spurious, or, at the very least, a very doubtful genus.

The third interpretation, as already stated, is based upon specimens which have the external appearance of the Schweinitzian specimen, but with different fruit. In this the asci are also cylindrical, but broader, and contain eight large cylindrical sporidia (120-135 × 15-17 μ) divided transversely by numerous septa, each cell so formed being at length longitudinally divided, so that the entire sporidium is muriform and hyaline. At complete maturity the joints separate, as figured by Berkeley in the sporidia of *Platygrapha magnifica* ("Annals of Natural History," Vol. xiv., t. 5, fig. 26 C).

This pseudo-Lichenopsis would, but for the longitudinal division of the cells, rank with Berkeley's *Platygrapha magnifica*, which, by-the-bye, is entirely out of place in *Platygrapha*, has nothing in common with the genus *Platygrapha* as recognized by Montague, and, in our opinion, is entitled to rank with fungi, and *not* with Lichens. With this impression, therefore, we are disposed to place these two fungi in a distinct genus of *Stictiæi* under the name of—

PLATYSTICTA, n.g. Erumpens, orbicularis, urceolatis, marginatis; disco plus minus decedente. Sporidiis magnis, hyalinis, pluriseptatis vel muriformibus, dissilientibus.

* *Sporidiis pluriseptatis.*

PLATYSTICTA MAGNIFICA (*B. & Br.*). *Platygrapha magnifica*, B. & Br. Ceylon Fungi, No. 973 e, t. 5, fig. 26.

** *Sporidiis muriformibus.*

Platysticta simulans, *Cke. & Mass. Lichenopsis sphæroboloides*, Berk in Herb. pro parte.

Immersa, erumpens, discoidea, urceolatis, margine albo. Ascis cylindraceis. Sporidiis cylindraceis, utrinque rotundatis, medio constrictis, pluriseptatis, dein muriformibus, hyalinis, 120-135 × 16-17 μ.

On *Quercus*. S. Carolina. No. 2423.

THELEPHOREI.

It has long been, and probably still is, somewhat a reproach to mycologists that whereas so much has been done in other orders of Fungi, the *Thelephorei* remain pretty much the same as they were fifty years ago. Yet there is ample scope for improvement, since the microscope has been very little brought into use with the view of facilitating their classification or more accurate determination. One slight step was taken in advance when certain species of *Stereum* were separated, and constituted a distinct genus, under the name of *Hymenochæte*, but even this failed to command universal acceptance. This failure was hardly based upon legitimate grounds, for the genus is a most natural one, but may partly be attributed to a prejudice against microscopical characters, on account of the additional labour involved, until it became almost compulsory. Another effort was subsequently made to obtain recognition for the genus *Peniophora*, which to some extent approached *Hymenochæte*, and was composed, for the most part, of species separated from the large genus *Corticium*. This, again, was not at all generally appreciated, and mycologists still went on attempting to identify species by the aid of a pocket lens, and the short, imperfect diagnosis of the older authors.

Anyone who has ever attempted the identification in this manner of the species of *Corticium* is painfully conscious of the difficulties which beset the way. The consultation of any good herbarium will consequently result in the discovery that, when the microscope is brought into operation, a series of specimens, having considerable external resemblance, are so different in fructification, and sometimes in texture, that only a very catholic spirit could induce anyone to accept them as one species. And yet there are so many good features in texture, as well as of fructification, that one is led to marvel that these have not been taken advantage of long ago to reform the classification.

It is needless to indicate here what are the features to be relied upon in a revision, since the work has long since been taken in hand by Mr. G. Massee, who for many months has been engaged in examining types, and elaborating new features

by means of which some of the larger genera may be reduced to working order. No inconsiderable portion of this monograph is already in type, and the residue ready for press at the shortest notice. When this appears we may probably embrace the opportunity to revert to the subject, and advance our opinion on the various modifications adopted. Without the aid of authentic specimens it is almost impossible in some cases to determine with exactitude the species of old authors, which depend entirely upon a short description drawn up from the external appearance. What hundreds of specimens have had to be examined in the course of these researches must be left to the imagination, and it is to be hoped that the results will be accepted with that appreciation which so much arduous and honest labour deserves. It would be too much to expect that any first effort of this kind should be absolutely perfect, but we may be sure that it will mark a step in advance, and render a difficult branch of the study more easy of comprehension.

Let anyone make the experiment for himself by consulting a large herbarium, in which, perhaps, some common species is represented by 50 or 100 specimens from various localities, determined, it may be, by several different individuals. Externally, it is true that they may bear a general resemblance the one to the other, but, when more minutely examined, it will be discovered that several different types of structure, or of fructification, all bear the same name. In such a case what is to determine the true species? Undoubtedly some authentic specimen of the original type, if it can be procured; but if not, then the form most generally accepted by mycologists of repute, or who were known to be in communication with the original author. It may be contended that even the original author, not having employed the microscope, may have issued specimens under the same name which are not identical. This has been done in the *Sphæriacei*, and may also occur in this group. In such a case the one which accords most closely with the description should be adopted, and accepted, supplemented with such details as may prevent a similar error in the future.

The advent of a monograph of the *Thelephorei* will, therefore, be anticipated with pleasure, and it is to be hoped that in a few weeks the first portion will be in the hands of all interested parties.

Fungus Forays, 1889.—Hitherto arrangements for the annual Forays are incomplete. Of course the Woolhope Club will occupy as usual the first week in October. The Hampshire Field Club have intimated their intention of continuing the precedent of the past two years, and there will be excursions in Epping Forest.

MEMORABILIA.

Lindberg.—By the death of Professor Lindberg, of Helsingfors, bryologists have lost a valuable coadjutor at the early age of 54. During his career he did considerable service, although we somewhat doubt the expediency of changing so many names, on the ground of priority, to which he was addicted.

Clavaria clavata, *Peck.*, in Ellis N. Amer. Fungi, No. 613, 25th report of New York State Museum of Natural History, p. 83, is undoubtedly the same as *Clavaria paludicola*, *Lib.*, Pl. Crypt. Ard. fasc. 4, No. 322 (1837).

Braithwaite's Moss Flora.—We are informed that another part of this valuable work may be anticipated about July.

Fungi, their Nature, Uses, etc.—Another edition, the fourth, of this volume by M. C. Cooke, in the International Scientific Series, has just appeared. It is almost unique that a book on Fungi, in this country, should proceed beyond a first, or at most a second edition.

Cooke's Illustrations of Fungi.—This work has now reached its 69th part, and plate 1,098. Progress has of late been very slow, on account of the difficulty experienced in getting the plates printed. Part 70 will include the greater part of *Cantharellus*, leaving *Marasmius* as the only remaining large genus to be encountered. The end is therefore in sight.

Cooke's British Fresh Water Algæ.—As only about four copies of this work still remain to be sold, it is expedient that any person, or Society, intending to purchase should at once come to a resolution. All the plates are "cleaned off," and hence the work is not likely to be reproduced. There is no doubt that stray copies will soon advance considerably in price.

Boletus and Polyporus.—It has been suggested that on the completion of Cooke's Illustrations of Fungi, embracing all the British Agaricini, a new work should be projected of the same character, giving coloured illustrations of *Boletus*, *Polyporus*, *Trametes*, *Dædalea*, *Merulius*, etc.; in fact, all the British Polyporei. It is presumed that such a work could be contained within the limits of a single volume of about 10 parts, with 16 plates each. The suggestion is still under consideration, and, if attempted, it would be as a *distinct* work, so as not to extend the "Illustrations of Fungi" beyond the projected eight volumes.

Ephelis.—A recent communication by M. C. Cooke and G. Massee, in the "Annals of Botany," suggests that the original

genus established by Fries belongs to the *Sphæropsideæ*, and that the name should not be employed in *Discomycetes* (as has been done by Mr. Phillips). A new development is detailed in the above paper, in which a Pyrenomycete (*Balansia trinitensis*, C. & M.) is shown to have been produced from the stroma of *Ephelis trinitensis*, C. & M., a species closely allied to *Ephelis mexicana*.

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